0059368

### SAF-B03-020 117-DR Quick Turn Analysis FINAL DATA PACKAGE

FAX RESULTS TO:	
Rikki Thoren 372-2183	N/A
VERIFICATION OF CLIENT RE	CEIPT:
Phone or CC:Mail to Rikki Thoren	N/A
COMPLETE COPY OF DATA PACKAG	EE TO:
Rikki Thoren X9-05	3 d 3/24/03 INITIAL/DATE
COMMENTS: (PLEASE INCLUDE THIS SHEET)	E FOLLOWING ON THE FAX COVER
SDG W03954 SAF-B03-0	020
Rad only Chem only X	Rad & Chem
X Complete Partial	



### **Analytical Data Package Prepared For**

### **Bechtel Hanford**



Radiochemical Analysis By

### **STL Richland**

2800 G.W. Way, Richland Wa, 99352, (509)-375-3131.

Assigned Laboratory Code: STLRL

Data Package Contains 101 Pages

**Report No.: 21956** 

SDG No.	Order No.	Client Sample ID (List Order	) Lot-Sa No.	Work Order	Report DB ID	Batch No.
W03954	B02-030	JOOFB6	J3A220291-2	FGHGV1AA	9FGHGV10	3024338
		JOOFB6	J3A220291-2	FGHGV1AF	9FGHGV10	3024342
		JOOFB6	J3A220291-2	FGHGV1AG	9FGHGV10	3024343
		JOOFB6	J3A220291-2	FGHGV1AC	9FGHGV10	3024344
		JOOFB6	J3A220291-2	FGHGV1AE	9FGHGV10	3024345
		JOOFB6	J3A220291-2	FGHGV1AD	9FGHGV10	3024346
		J00FB6	J3A220291-2	FGHGV1AK	9FGHGV10	3024348
		J00FB6	J3A220291-2	FGHGV1AJ	9FGHGV10	3024349
		J00FB6	J3A220291-2	FGHGV1AL	9FGHGV10	3024350
		JOOFB6	J3A220291-2	FGHGV1AV	9FGHGV10	3051473
		JOOFB6	J3A220291-2	FGHGV2AT	9FGHGV20	3062565
		JOOFB7	J3A220291-1	FGHGQ1AA	9FGHGQ10	3024338
		JOOFB7	J3A220291-1	FGHGQ1AF	9FGHGQ10	3024342
		JOOFB7	J3A220291-1	FGHGQ1AG	9FGHGQ10	3024343
		JOOFB7	J3A220291-1	FGHGQ1AC	9FGHGQ10	3024344
		JOOFB7	J3A220291-1	FGHGQ1AE	9FGHGQ10	3024345
		JOOFB7	J3A220291-1	FGHGQ1AD	9FGHGQ10	3024346
		JOOFB7	J3A220291-1	FGHGQ1AK	9FGHGQ10	3024348
		JOOFB7	J3A220291-1	FGHGQ1AJ	9FGHGQ10	3024349
		JOOFB7	J3A220291-1	FGHGQ1AL	9FGHGQ10	3024350
		JOOFB7	J3A220291-1	FGHGQ1AW	9FGHGQ10	3051473
		JOOFB7	J3A220291-1	FGHGQ2AV	9FGHGQ20	3062565



#### CERTIFICATE OF ANALYSIS

Bechtel Hanford, Inc. 3350 George Washington Way Richland, WA 99352

March 18, 2003

Attention: Joan Kessner

#### FINAL REPORT

SAF Number : B02-030

Date SDG Closed : Jnauary 22, 2003

Number of Samples : Two(2)
Sample Type : Soil
SDG Number : W03954

Data Deliverable : 21-Day / Summary

#### I. Introduction

On January 22, 2003, two soil samples were received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific IDs:

STLR ID#	<u>BHI ID#</u>	<u>MATRIX</u>	DATE OF RECEIPT
FGHGQ	J00FB7	SOIL	1/22/03
FGHGV	J00FB6	SOIL	1/22/03

#### II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analyses were:

Alpha Spectroscopy

Americium-241 by method RICH-RC-5010

Plutonium-238 and 239/240 by method RICH-RC-5010 Uranium-234, 235, 238 by method RICH-RC-5079

**Gas Proportional Counting** 

Total Strontium by method RICH-RC-5006

Liquid Scintillation Counting
Tritium by method RICH-RC-5037
Carbon-14 by method RICH-RC-5022
Nickel-63 by method RICH-RC-5069
Plutonium-241 by method RICH-RC-5010
Gamma Spectroscopy
Gamma Spec by method RICH-RC-5017
Nickel-59 by method RICH-RC-5069
Chemical Analyses
Chromium Hex by EPA method 7196A

#### III. Quality Control

The analytical results for each analysis performed under SDG W03954 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

#### IV. Comments

#### Alpha Spectroscopy

#### Americium-241 by method RICH-RC-5010:

The LCS, batch blank, sample duplicate (J00FB7), and sample results are within contractual requirements.

#### Plutonium-238 and 239/240 by method RICH-RC-5010:

The batch blank, matrix blank, spike, and matrix spike have low yields (12.3%, 10%, 7.6%, 8.1% respectively). The sample and duplicate tracer yields are acceptable at 35%, 58% and 75%. The sample results are all below 0.03 pCi/g. The client was contacted for direction. Direction was given to report the results documenting these issues. Potentially, better plutonium isotopic analyses will result from the plutonium-241 analysis. If so, we will report the best data in the final report. Except as noted, the LCS, batch blank, sample duplicate (J00FB7), and sample results are within contractual requirements.

The re-analysis batch plutonium isotopic for obtaining tracer yields for Pu-241, was re-analyzed as well. We now have three analyses for plutonium isotopic. Each batch had a different problem; low yield for sample, high yield for blanks. The original results are supported by the two sets of re-runs. We will report the original results as the final plutonium isotopic results.

Bechtel Hanford, Inc.

March 18, 2003

Page 3

#### Uranium-234, 235, 238 by method RICH-RC-5079:

The LCS, batch blank, sample duplicate (J00FB7), and sample results are within contractual requirements.

#### **Gas Proportional Counting**

#### Total Strontium by method RICH-RC-5006:

The LCS, batch blank, sample duplicate (J00FB6), and sample results are within contractual requirements.

#### Liquid Scintillation Counting

#### Tritium by method RICH-RC-5037:

The LCS, batch blank, sample duplicate (J00FB6), and sample results are within contractual requirements.

#### Carbon-14 by method RICH-RC-5022:

The LCS, batch blank, sample duplicate (J00FB6), and sample results are within contractual requirements.

#### Nickel-63 by method RICH-RC-5069:

The LCS, batch blank, sample duplicate (J00FB7), and sample results are within contractual requirements.

#### Plutonium-241 by method RICH-RC-5010:

The batch blank and matrix blank yields were high (157% and 127%). Except as noted, the LCS, batch blank, sample duplicate (J00FB7), and sample results are within contractual requirements.

#### Gamma Spectroscopy

#### Gamma Spec by method RICH-RC-5017:

The LCS, batch blank, sample duplicate (J00FB6), and sample results are within contractual requirements.

#### Nickel-59 by method RICH-RC-5069:

The LCS, batch blank, sample duplicate (J00FB6), and sample results are within contractual requirements.

#### Chemical Analyses

#### Chromium Hex by EPA method 7196A:

The LCS, batch blank, sample duplicate (J00FB7), matrix spike (J00FB7), color (J00FB7 PbCrO4) spike, and sample results are within contractual requirements.

Bechtel Hanford, Inc. March 18, 2003 Page 4

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:

Barbara M. Gillespie

Project Manager

**Drinking Water Method Cross References** 

	DRINKING WATER ASTM METHOD CROSS REFERE							
Referenced Method	Isotope(s)	STL Richland's SOP number						
EPA 901.1	Cs-134, I-131	RICH-RC-5017						
EPA 900.0	Alpha & Beta	RICH-RC-5014						
EPA 903.1	Ra-226	RICH-RC-5005						
EPA 904.0	Ra-228	RICH-RC-5005						
EPA 905.0	Sr89/90	RICH-RC-5006						
ASTM D2460	Total Radium	RICH-RC-5027						
Standard Method 7500-U-C & ASTM D5174	Uranium	RICH-RC-5058						
EPA 906.0	Tritium	RICH-RC-5007						
NOTE:								
The Gross Alpha LCS is prepared with Am-24								
The Gross Beta LCS is prepared with Sr/Y-9	O (unless otherwise	e specified in the case narrative)						

#### **Uncertainty Estimation**

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants \* f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties  $(u_i)$  are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty  $(u_c)$  multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/vn), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

**Report Definitions** 

An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action **Action Lev** Level. Often the Action Level is related to the Decision Limit. The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed Batch together. Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30. Bias Chain of Custody Number assigned by the Client or STL Richland. COC No Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same Count Error (#s) units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background. All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure Total Uncert (#s) of the uncertainty associated with the result, uc the combined uncertainty. The uncertainty is absolute and in the  $u_c$ \_Combined same units as the result. Uncertainty. The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations. (#s), Coverage **Factor** Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" CRDL (RL) nominal detection limit. Often referred to the reporting level (RL) Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume Lc associated with the sample. The Type I error probability is approximately 5%. Lc=(1.645 \*  $Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin))*(ConvFct/(Eff*Yld*Abn*Vol)*IngrFct). \ \ For \ LSC \ methods \ the \ \ ConvFct/(Eff*Yld*Abn*Vol)*(ConvFct/(Eff*Y$ batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero. The number assigned by the LIMS software to track samples received on the same day for a given client. The Lot-Sample No sample number is a sequential number assigned to each sample in the Lot. Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume MDC MDA with a Type I and II error probability of approximately 5%. MDC = (4.65 \* Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) \* (ConvFct/(Eff \* Yld \* Abn \* Vol) \* IngrFct). For LSC methods the batch blank is used as a measure of the background variability. The instrument identifier associated with the analysis of the sample aliquot. **Primary Detector** The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is Ratio U-234/U-238 1.038. Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of Rst/MDC confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result. Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may Rst/TotUcert indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result. Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Report DB No Number. The equation Replicate Error Ratio = (S-D)/[sqrt(TPUs<sup>2</sup> + TPUd<sup>2</sup>)] as defined by ICPT BOA where S is the original RER sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample. Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt. SDG The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where Sum Rpt Alpha the results are in the same units. Spec Rst(s) The LIMS software assign test specific identifier. Work Order The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method. Yield

## Sample Results Summary STL Richland STLRL

STL Richland STLRL
Ordered by Method, Batch No., Client Sample ID.

**Report No.: 21956** 

**SDG No: W03954** 

Date: 19-Mar-03

3051473 NISQ_GS JODFB6 FGHGVIAV NI-59 FGHGVIAV NI-59 JOFB6 DUP FGHGVIA NI-59 FGHGVIAV NI-59 JOOFB7 FGHGQTA NI-59 SQ24342 PUISO_PLATE_AEA JOOFB6 FGHGVIAF PU-238 FGHGVIAF PU-238 FGHGQTAF PU-238 FGHGQTAF PU-238 FGHGQTAF PU-238 FGHGQTAF PU-238 FGHGQTAF PU-238 JOOFB7 FGHGQTAF PU-238 FGHGQTAF PU-238 FGHGQTAF PU-238 JOOFB6 FGHGVIAF PU-238 FGHGQTAF PU-238 FGHGQTAF PU-238 JOOFB7 FGHGGTAF PU-238 FGHGQTAF PU-238 JOOFB7 FGHGGTAF PU-238 FGHGQTAF PU-238 JOOFB7 FGHGGTAF PU-238 FGHGGTAF FGHGGT	Client id	ler Parameter	Result +- U	ncertainty ( 2s)	Qual	Units	Yield	MDC or MDA	CRDL	RPD
JOOFB6 FGHQV1AV NI-59 JOOFB DUP FGHGV1A NI-59 J.13E+00 + 2.2E+00 U pCl/g 92.45% 3.91E+00 3.00E+01 JOOFB TGHGQ1A NI-59 J.01E+00 + 2.4E+00 U pCl/g 92.45% 3.91E+00 3.00E+01 JOOFB FGHGQ1A NI-59 JOOFB FGHGV1AF PU-238 JOOFB FGHGV1AF PU-238 FGHGV1AF PU-238 JOOFB FGHGQ1AF AM-241 JOOFB FGHGQ1AF			· · · · · · · · · · · · · · · · · · ·		=	•	· · · · · ·			
JOOFBG DUP FGHGYTAN NI-59  1.13E+00 + 2.2E+00 U pCi/g 92.45% 3.91E+00 3.00E+01 JOOFB7 FGHGGTA NI-59  3.01E+00 + 2.4E+00 U pCi/g 85.85% 3.74E+00 3.00E+01 FGHGGTA NI-59  3.024342 PUISO_PLATE_AEA JOOFB6 FGHGV1AF PU-238									0.005.04	
FGHGV1A NI-59	FGHGV1AV	NI-59	1.59E-01	+- 2.5E+00	U	pCi/g	85.62%	4.23E+00	3.005+01	
DOURS   DOUR						01/-	00.450/	0.045.00	2 00E+01	
FGHGQ1A NI-59	FGHGV1A	NI-59	1.13E+00	+- 2.2E+00	U	pcvg	92.45%	3.916+00	3.000	
### STANDARY PURSO PLATE AEA  JOFB6 FGHGV1AF PU-238 FGHGV1AF PU-238 FGHGV1AF PU-238 PU239/40			0.045.00	. 0.45.00		nCi/a	85 85%	3 74F±00	3.00E+01	
JOOFB6 FGHGV1AF PU-238			-3.012+00	+- 2.46+00	U	porg	00.0070	0.742700	0.002.0.	
FGHGV1AF PU-238		ATE_AEA								
PU239/40 7.92E-03 + 1.3E-02 U pCi/g 74.98% 2.11E-02 1.00E+00  JOOFB7 FGHGQ1AF PU-238 0.00E+00 + 2.3E-02 U pCi/g 35.26% 2.54E-02 1.00E+00 PU239/40 9.38E-03 + 1.9E-02 U pCi/g 35.26% 2.54E-02 1.00E+00 PU239/40 5.92E-03 + 1.2E-02 U pCi/g 35.26% 2.54E-02 1.00E+00 PU239/40 5.92E-03 + 1.2E-02 U pCi/g 57.59% 1.61E-02 1.00E+00 PU239/40 5.92E-03 + 1.2E-02 U pCi/g 57.59% 1.60E-02 1.00E+00 PU239/40 5.92E-03 + 1.2E-02 U pCi/g 57.59% 1.60E-02 1.00E+00 PU239/40 5.92E-03 + 1.2E-02 U pCi/g 57.59% 1.60E-02 1.00E+00 PU239/40 1.30E-02 + 3.6E-02 U pCi/g 61.95% 1.82E-02 1.00E+00 JOOFB6 FGHGV1AG AM-241 1.34E-02 + 1.9E-02 U pCi/g 61.95% 1.82E-02 1.00E+00 JOOFB7 DUP FGHGQ1AR AM-241 3.03E-02 + 2.5E-02 pCi/g 85.81% 1.37E-02 1.00E+00 JOOFB6 FGHGV1AC U-234 4.64E-01 + 1.5E-01 pCi/g 76.82% 6.39E-02 1.00E+00 U-235 2.08E-02 + 3.1E-02 U pCi/g 76.82% 7.37E-02 1.00E+00 JOOFB7 FGHGQ1AC U-234 4.69E-01 + 1.4E-01 pCi/g 76.82% 7.37E-02 1.00E+00 U-238 5.17E-01 + 1.6E-01 pCi/g 81.97% 6.65E-02 1.00E+00 U-238 5.17E-01 + 1.6E-01 pCi/g 81.97% 7.63E-02 1.00E+00 U-235 5.36E-02 + 2.8E-02 U pCi/g 81.97% 7.63E-02 1.00E+00 U-238 5.17E-01 + 1.6E-01 pCi/g 81.97% 7.63E-02 1.00E+00 U-235 5.36E-03 + 1.4E-01 pCi/g 88.39% 3.79E-02 1.00E+00 U-236 4.52E-01 + 1.4E-01 pCi/g 88.39% 3.79E-02 1.00E+00 U-236 4.52E-01 + 1.4E-01 pCi/g 88.39% 3.79E-02 1.00E+00 U-238 4.52E-01 + 1.4E-01 pCi/g 88.39% 3.21E-02 1.00E+00		DI 1-238	4 40F-03	+- 8.8E-03	U	pCi/a	74.96%	1.19E-02	1.00E+00	
JOOFB7   FGHGQ1AF PU-238	FORIGVIA						74.96%	2.11E-02	1.00E+00	
FGHGQ1AF PU-238	IOOER7	1 0200/40			_					
JOOFB7 DUP FGHGQ1AQ PU-238		PU-238	0.00E+00	+- 2.3E-02	U	pCi/g	35.26%	2.54E-02	1.00E+00	
FGHG01AQ PU-238		PU239/40	9.38E-03	+- 1.9E-02	U	pCi/g	35.26%	2.54E-02	1.00E+00	
PU239/40 5.92E-03 + 1.2E-02 U pCl/g 57.59% 1.60E-02 1.00E+00  3024343 AMCMISO_EIE_PLT_AEA J00FB6 FGHGV1AG AM-241 6.62E-02 + 3.6E-02 PCl/g 100.67% 1.20E-02 1.00E+00  J00FB7 FGHGQ1AG AM-241 1.34E-02 + 1.9E-02 U pCl/g 61.95% 1.82E-02 1.00E+00  J00FB7 PGHGQ1AR AM-241 3.03E-02 + 2.5E-02 PCl/g 85.81% 1.37E-02 1.00E+00  3024344 UISO_IE_PLATE_AEA J00FB6 FGHGV1AC U-234 4.64E-01 + 1.5E-01 PCl/g 76.82% 6.39E-02 1.00E+00  U-235 2.08E-02 + 3.1E-02 U pCl/g 76.82% 5.80E-02 1.00E+00  U-238 4.35E-01 + 1.4E-01 PCl/g 76.82% 7.37E-02 1.00E+00  J00FB7 FGHGQ1AC U-234 4.69E-01 + 1.5E-01 PCl/g 81.97% 6.65E-02 1.00E+00  U-235 2.35E-02 + 2.8E-02 U pCl/g 81.97% 6.65E-02 1.00E+00  U-238 5.17E-01 + 1.6E-01 PCl/g 81.97% 7.63E-02 1.00E+00  J00FB7 DUP FGHGQ1AT U-234 4.53E-01 + 1.4E-01 PCl/g 88.39% 3.79E-02 1.00E+00  U-235 5.36E-03 + 1.4E-02 U pCl/g 88.39% 3.79E-02 1.00E+00  U-235 5.36E-03 + 1.4E-02 U pCl/g 88.39% 3.21E-02 1.00E+00  U-235 5.36E-03 + 1.4E-02 U pCl/g 88.39% 3.21E-02 1.00E+00  U-235 5.36E-03 + 1.4E-02 U pCl/g 88.39% 3.21E-02 1.00E+00  U-235 5.36E-03 + 1.4E-02 U pCl/g 88.39% 3.21E-02 1.00E+00  U-238 4.52E-01 + 1.4E-01 PCl/g 88.39% 3.21E-02 1.00E+00  U-238 4.52E-01 + 1.4E-01 PCl/g 88.39% 4.23E-02 1.00E+00  U-238 J00FB6	JOOFB7 DUP									
### Section   Se	FGHGQ1AQ	PU-238	5.92E-03	+- 1.2E-02	U	pCi/g	57.59%	1.61E-02	1.00E+00	200.
JOOFB6 FGHGV1AG AM-241		PU239/40	5.92E-03	+- 1.2E-02	U	pCi/g	57.59%	1.60E-02	1.00E+00	45.
FGHGV1AG AM-241 6.62E-02 + 3.6E-02 pCi/g 100.67% 1.20E-02 1.00E+00  J00FB7 FGHGQ1AG AM-241 1.34E-02 + 1.9E-02 U pCi/g 61.95% 1.82E-02 1.00E+00  J00FB7 DUP FGHGQ1AR AM-241 3.03E-02 + 2.5E-02 pCi/g 85.81% 1.37E-02 1.00E+00  3024344 UISO_IE_PLATE_AEA  J00FB6 FGHGV1AC U-234 4.64E-01 + 1.5E-01 pCi/g 76.82% 6.39E-02 1.00E+00  U-235 2.08E-02 + 3.1E-02 U pCi/g 76.82% 5.80E-02 1.00E+00  U-238 4.35E-01 + 1.4E-01 pCi/g 76.82% 7.37E-02 1.00E+00  J00FB7 FGHGQ1AC U-234 4.69E-01 + 1.5E-01 pCi/g 81.97% 6.65E-02 1.00E+00  U-235 2.35E-02 + 2.8E-02 U pCi/g 81.97% 4.37E-02 1.00E+00  U-238 5.17E-01 + 1.6E-01 pCi/g 81.97% 7.63E-02 1.00E+00  U-238 5.17E-01 + 1.6E-01 pCi/g 81.97% 7.63E-02 1.00E+00  U-235 5.36E-03 + 1.4E-01 pCi/g 88.39% 3.79E-02 1.00E+00  U-235 5.36E-03 + 1.4E-01 pCi/g 88.39% 3.79E-02 1.00E+00  U-238 4.52E-01 + 1.4E-01 pCi/g 88.39% 3.21E-02 1.00E+00  U-238 4.52E-01 + 1.4E-01 pCi/g 88.39% 3.21E-02 1.00E+00  U-238 4.52E-01 + 1.4E-01 pCi/g 88.39% 3.21E-02 1.00E+00	24343 AMCMISO	_EIE_PLT_AEA								
JOOFB7 FGHGQ1AG AM-241 JOSE-02 + 1.9E-02 U pCVg 61.95% 1.82E-02 1.00E+00 JOOFB7 DUP FGHGQ1AR AM-241 3.03E-02 + 2.5E-02 pCVg 85.81% 1.37E-02 1.00E+00  3024344 UISO_IE_PLATE_AEA JOOFB6 FGHGV1AC U-234	••						400.070/	4.005.00	1.005.00	
FGHGQ1AG AM-241  JO0FB7 DUP FGHGQ1AR AM-241  3.03E-02 + 2.5E-02  PCi/g 85.81%  1.37E-02 1.00E+00  3024344 UISO_IE_PLATE_AEA  JO0FB6 FGHGV1AC U-234  U-235  U-238  JO0FB7 FGHGQ1AC U-234  4.69E-01 + 1.5E-01  U-235  U-235  DU236  FGHGQ1AC U-234  A69E-01 + 1.5E-01  DCi/g 76.82%  FGHGQ1AC U-234  A69E-01 + 1.5E-01  DCi/g 76.82%  FGHGQ1AC U-234  A69E-01 + 1.5E-01  DCi/g 76.82%  FGHGQ1AC U-234  A69E-01 + 1.5E-01  DCi/g 81.97%  A37E-02 1.00E+00  U-235  DCI/g 81.97%  A37E-02 1.00E+00  U-238  JO0FB7  FGHGQ1AT U-234  JO0FB7  FGHGQ1AT U-234  A53E-01 + 1.4E-01  DCi/g 81.97%  A37E-02 1.00E+00  U-235  JO0FB7 DUP  FGHGQ1AT U-234  A53E-01 + 1.4E-01  DCi/g 88.39%  JO0FB7  DCi/g 88.39%  JO0FB0  JO0FB7  DCi/g 88.39%  JO0FB0  JO0FB6	FGHGV1AG	AM-241	6.62E-02	+- 3.6E-02		pCi/g	100.67%	1.20E-02	1.00E+00	
JOOFB7 DUP FGHGQ1AC AM-241  3.03E-02 + 2.5E-02  pCi/g 85.81% 1.37E-02 1.00E+00  3024344 UISO_IE_PLATE_AEA  JOOFB6 FGHGV1AC U-234  4.64E-01 + 1.5E-01  U-235  2.08E-02 + 3.1E-02  U pCi/g 76.82% 5.80E-02 1.00E+00  U-238  4.69E-01 + 1.5E-01  DCi/g 76.82% 7.37E-02 1.00E+00  U-235  2.35E-02 + 2.8E-02  U pCi/g 81.97% 6.65E-02 1.00E+00  U-238  5.17E-01 + 1.6E-01  DCi/g 81.97% 4.37E-02 1.00E+00  U-238  JOOFB7 DUP FGHGQ1AT U-234  4.53E-01 + 1.4E-01  PCi/g 88.39% 3.79E-02 1.00E+00  U-235  JOOFB7 DUP FGHGQ1AT U-234  4.53E-01 + 1.4E-01  DCi/g 88.39% 3.79E-02 1.00E+00  U-235  JOOFB7 DUP FGHGQ1AT U-234  4.53E-01 + 1.4E-01  DCi/g 88.39% 3.79E-02 1.00E+00  U-235  JOOFB6 S3839% 3.21E-02 1.00E+00  U-238  JOOFB6 S3839% 4.23E-02 1.00E+00		****	1 245 00	. 105.03	11	nCi/a	61 95%	1 82F-02	1.00F+00	
FGHGQ1AR AM-241 3.03E-02 +- 2.5E-02 pCi/g 85.81% 1.37E-02 1.00E+00  3024344 UISO_IE_PLATE_AEA  JO0FB6 FGHGV1AC U-234		AM-241	1.346-02	+- 1.96-02	. 0	porg	01.3070	1.022 02	7,002.00	
JOOFB7 DUP FGHGQ1AT U-234 JOOFB7 DUP FGHGQ1AT U-235 JOOFB7 DUP FGHGQ1AT U-234 JOOFB7 DUP FGHGQ1A		AM-241	3 03F-02	+- 2.5E-02		pCi/a	85.81%	1.37E-02	1.00E+00	77.
JOOFB6 FGHGV1AC U-234	- <del>-</del>		5.552 4-	. 2.02 02		1				
FGHGV1AC U-234		PLAIE_AEA								
U-238		U-234	4.64E-01	+- 1.5E-01		pCi/g	76.82%	6.39E-02	1.00E+00	
JOOFB7 FGHGQ1AC U-234		U-235	2.08E-02	+- 3.1E-02	U	pCi/g	76.82%	5.80E-02	1.00E+00	
FGHGQ1AC U-234		U-238	4.35E-01	+- 1.4E-01		pCi/g	76.82%	7.37E-02	1.00E+00	
U-235	J00FB7									
U-238 5.17E-01 +- 1.6E-01 pCi/g 81.97% 7.63E-02 1.00E+00  J00FB7 DUP FGHGQ1AT U-234 4.53E-01 +- 1.4E-01 pCi/g 88.39% 3.79E-02 1.00E+00 U-235 5.36E-03 +- 1.4E-02 U pCi/g 88.39% 3.21E-02 1.00E+00 U-238 4.52E-01 +- 1.4E-01 pCi/g 88.39% 4.23E-02 1.00E+00  3024348 GAMMA_GS J00FB6	FGHGQ1AC	U-234	4.69E-01	+- 1.5E-01		pCi/g	81.97%			
J00FB7 DUP FGHGQ1AT U-234 U-235 U-238  4.53E-01 +- 1.4E-01 PCi/g 88.39% 3.79E-02 1.00E+00 PCi/g 88.39% 3.21E-02 1.00E+00 PCi/g 88.39% 3.21E-02 1.00E+00 PCi/g 88.39% 4.23E-02 1.00E+00 PCi/g 88.39% 4.23E-02 1.00E+00 PCi/g 88.39% 4.23E-02 1.00E+00		U-235	2.35E-02	+- 2.8E-02	U					
FGHGQ1AT U-234 4.53E-01 +- 1.4E-01 pCi/g 88.39% 3.79E-02 1.00E+00 U-235 5.36E-03 +- 1.4E-02 U pCi/g 88.39% 3.21E-02 1.00E+00 U-238 4.52E-01 +- 1.4E-01 pCi/g 88.39% 4.23E-02 1.00E+00  3024348 GAMMA_GS J00FB6		U-238	5.17E-01	+- 1.6E-01		pCi/g	81.97%	7.63E-02	1.00E+00	
U-235 5.36E-03 +- 1.4E-02 U pCi/g 88.39% 3.21E-02 1.00E+00 U-238 4.52E-01 +- 1.4E-01 pCi/g 88.39% 4.23E-02 1.00E+00  3024348 GAMMA_GS JOOFB6	J00FB7 DUP								4.005.00	•
U-238 4.52E-01 +- 1.4E-01 pCi/g 88.39% 4.23E-02 1.00E+00 3024348 GAMMA_GS J00FB6	FGHGQ1AT					•				3.4
3024348 GAMMA_GS J00FB6					U					125
JOOFB6		U-238	4.52E-01	+- 1.4E-01		pCi/g	88.39%	4.23E-02	1.000+00	13.
	<del>-</del>	GS								
FGHGV1AK BA-133 -9.60E-03 +- 1.4E-02 U pCi/g 2.00E-02		DA 400	0.805.00	. 4.45.00	11	nCi/a		2.00E-02		

STL Richland

RPD - Relative Percent Difference.

rptSTLRchSaSum mary2 V3.99 A97

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

### Sample Results Summary STL Richland STLRL

Ordered by Method, Batch No., Client Sample ID.

**Report No.:** 21956

**SDG No: W03954** 

	nt id Vork Ord	er Parameter	Result +- L	Incertainty ( 2s)	Qual	Units	Yield	MDC or MDA	CRDL	RPD
3024348 G	AMMA G	s					<u> </u>	<del></del>	· - <u>.</u>	
J00FB6	;									
FGH	GV1AK	CO-60	6.59E-03	+- 1.2E-02	U	pCi/g		2.14E-02	5.00E-02	
		CS-137	2.88E-03	+- 1.2E-02	U	pCi/g		2.04E-02	1.00E-01	
		EU-152	4.97E-02	+- 3.7E-02	U	pCi/g		5.17E-02	1.00E-01	
		EU-154	-4.11E-02	+- 4.1E-02	U	pCi/g		6.54E-02	1.00E-01	
		EU-155	5.00E-02	+- 2.8E-02	U	pCi/g		4.69E-02	1.00E-01	
J00FB6	DUP									
FGH	GV1AP	BA-133	3.35E-02	+- 1.8E-02	Ų	pCi/g		2.60E-02		
		CO-60	9.31E-03	+- 1.3E-02	U	pCi/g		2.31E-02	5.00E-02	
		CS-137	3.49E-02	+- 1.5E-02	U	pCi/g		2.55E-02	1.00E-01	
		EU-152	-4.60E-02	+- 4.9E-02	U	pCi/g		5.64E-02	1.00E-01	
		EU-154	-2.04E-02	+- 4.2E-02	U	pCi/g		7.05E-02	1.00E-01	
		EU-155	4.90E-02	+- 3.9E-02	U	pCi/g		6.52E-02	1.00E-01	
J00FB7										
FGHO	GQ1AK	BA-133	3.53E-03	+- 1.3E-02	U	pCi/g		1.85E-02		
		CO-60	2.75E-04	+- 9.6E-03	U	pCi/g		1.66E-02	5.00E-02	
		CS-137	1.74E-02	+- 1.5E-02		pCi/g		1.62E-02	1.00E-01	
		EU-152	3.50E-02	+- 3.2E-02	U	pCi/g		4.57E-02	1.00E-01	
		EU-154	-3.16E-02	+- 3.1E-02	U	pCi/g		4.94E-02	1.00E-01	
		EU-155	3.11E-02	+- 2.6E-02	U	pCi/g		4.37E-02	1.00E-01	
3024346 SR JOOFB6	RTOT_SE	P_PRECIP_GPC								
		STRONTIUM	2.75E-02	+- 5.2E-02	U	pCi/g	89.20%	1.14E-01		
		STRONTIUM	3.96E-02	+- 5.5E-02	U	pCi/g	87.80%	1.16E-01		36.2
J00FB7 FGH0	3Q1AD	STRONTIUM	5.27E-02	+- 5.6E-02	U	pCi/g	88.10%	1.14E-01		
3024338 EP			•			. •				
JOOFB6 FGHO	GV1AA	HEXCHROME	3.50E-01	+- 1.6E-01	U	mg/kg	N/A	3.50E-01	3.50E-01	
JOOFB7 FGHG	GQ1AA	HËXCHROME	3.50E-01	+- 0.0E+00	U	mg/kg	N/A	8.00E-02	3.50E-01	
J00FB7 FGH0		HEXCHROME	4.20E-01	+- 0.0E+00		mg/kg	N/A	8.00E-02	3.50E-01	18.1
3024345 NI6 JOOFB6	B3LSC GV1AE	Ni co	4.405.00	+- 5.6E+00	11	nCi/a	QQ 219/	6.45E+00	3.00F±01	
JoofB7	av iae	INI-03	4.496+00	+- 3.0E+UU	U	pCi/g	90.31%	0.435.+00	3.000+01	
FGHG	3Q1AE	NI-63	8.71E-01	+- 5.1E+00	U	pCi/g	95.53%	6.04E+00	3.00E+01	

STL Richland

rptSTLRchSaSum mary2 V3.99 A97  $\ \, U \ \, Qual \, - \, Analyzed \ \, for, \, but \, the \, \, result \, is \, less \, than \, \, the \, \, Mdc/Mda | Total \, \, Uncert \, or \, gamma \, \, scan \, software \, did \, not \, identify \, \, the \, nuclide. \, \, \, \, In the \, \, th$ 

RPD • Relative Percent Difference.

### Sample Results Summary STL Richland STLRL

Ordered by Method, Batch No., Client Sample ID.

**Report No.: 21956** 

**SDG No: W03954** 

Client Id Batch Work Ord	er Parameter	Result +- U	ncertainty ( 2s)	Qual	Units	Yield	MDC or MDA	CRDL.	RPD
3024345 NI63LSC									
J00FB7 DUP FGHGQ1AU	NI-63	7.53E+00	+- 5.5E+00		pCi/g	94.34%	6.10E+00	3.00E+01	158.5
3024349 906.0_H3_I	LSC								
FGHGV1AJ	H-3	2.73E-03	+- 1.3E-02	U	pCi/g	100.00%	2.94E-02	4.00E+02	
J00FB6 DUP FGHGV1AQ	н-3	5.96E-03	+- 1.3E-02	U	pCi/g	100.00%	2.99E-02	4.00E+02	74.2
J00FB7 FGHGQ1AJ	H-3	9.63E-03	+- 1.3E-02	U	pCi/g	100.00%	2.91E-02	4.00E+02	
3024350 C14_LSC J00FB6									
FGHGV1AL	C-14	8.28E-01	+- 3.9E-01		pCi/g	100.00%	7.96E-01	5.00E+01	
J00FB6 DUP FGHGV1AR	C-14	3.14E-01	+- 3.8E-01	U	pCi/g	100.00%	7.98E-01	5.00E+01	90.1
J00FB7 FGHGQ1AL	C-14	4.22E-01	+- 3.8E-01	U	pCi/g	100.00%	7.98E-01	5.00E+01	
3062565 PU241_IE_ J00FB6	LSĆ								
FGHGV2AT	PU-241	2.19E+00	+- 6.8E-01		pCi/g	66.70%	1.24E+00	1.50E+01	
J00FB7 FGHGQ2AV	PU-241	2.44E+00	+- 7.9E-01		pCi/g	56.60%	1.46E+00	1.50E+01	
J00FB7 DUP FGHGQ2A1	PU-241	2.67E+00	+- 8.1E-01		pCi/g	56.30%	1.48E+00	1.50E+01	8.9
No. of Results:	57								

<sup>-</sup> Relative Percent Difference.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

# QC Results Summary STL Richland STLRL

Ordered by Method, Batch No, QC Type,.

**Report No.: 21956** 

**SDG No.:** W03954

Batch Work Order	Parameter	Result +- Uncertainty ( 2s)	Qual	Units	Yield	Recovery	Blas	MDCJMDA
NI59_GS								
3051473 BLANK (	DC .			0.1	00.400/			E 20E . 00
FH0WV1AA	NI-59	2.09E+00 +- 2.9E+00	U	pCi/g	69.40%			5.29E+00
3051473 LCS		4.045.00 . 4.85.01		oCi/a	65.18%	113.10%	0.1	8.77E+00
FH0WV1AC	NI-59	4.24E+02 +- 4.8E+01		pCi/g	05.1076	110.1070	0.1	0,772100
PUISO_PLATE_AEA 3024342 BLANK (								
FGLTC1AA	PU-238	0.00E+00 +- 6.6E-02	U	pCi/g	12.33%			7.33E-02
, 02,0,0	PU239/40	0.00E+00 +- 6.6E-02	U	pCi/g	12.33%			7.32E-02
3024342 LCS	. 0200. 10							
FGLTC1AC	PU239/40	4.09E+00 +- 1.5E+00		pCi/g	7.58%	118.97%	0.2	1.18E-01
AMCMISO_EIE_PLT								
3024343 BLANK (	•	8.56E-03 +- 1.2E-02	U	pCi/g	97.47%			1.16E-02
FGLTF1AA	AM-241	0.30E-US +- 1.2E-UZ	J	porg	\$1.7770			
3024343 LCS FGLTF1AC	AM-241	4.99E+00 +- 9.2E-01		pCi/g	85.39%	110.57%	0.1	1.32E-02
UISO_IE_PLATE_AL								
FGLTK1AA	U-234	-5.28E-03 +- 1.5E-02	U	pCi/g	90.03%			5.89E-02
	U-235	-3.95E-03 +- 4.6E-03	U	pCi/g	90.03%			4.16E-02
	U-238	-3.96E-03 +- 1.5E-02	U	pCi/g	90.03%			5.66E-02
3024344 LCS								
FGLTK1AC	U-234	3.06E+00 +- 6.4E-01		pCi/g	93.76%	91.51%	-0.1	3.81E-02
	U-238	3.44E+00 +- 7.1E-01		pCi/g	93.76%	98.25%	0.0	3.81E-02
GAMMA_GS								
3024348 BLANK (			1.1	-01/-				1.71E-02
FGLT81AA	BA-133	4.43E-03 +- 1.2E-02	U	pCi/g				1.71E-02 1.27E-02
	CO-60	-5.91E-03 +- 7.7E-03	U	pCi/g				1.44E-02
	CS-137	2.52E-03 + 8.2E-03	U	pCi/g				
	EU-152	-6.83E-03 +- 2.5E-02	U	pCi/g				3.96E-02
	EU-154	-1.50E-02 +- 2.2E-02	U	pCi/g				3.61E-02
	EU-155	-2.15E-02 +- 3.1E-02	U	pCi/g				5.10E-02
3024348 LCS	CS-137	2.75E-01 +- 5.0E-02		pCi/g		95.36%	0.0	3.76E-02
FGLT81AC		1.87E+01 +- 2.5E+00		pCi/g		95.83%	0.0	3.03E-01
	K-40					91.49%	-0.1	6.21E-02
	RA-226	1.05E+00 +- 1.6E-01		pCi/g		109.83%	0.1	1.21E-01
	RA-228	2.06E+00 +- 3.1E-01	1.1	pCi/g		67.38%	-0.3	8.75E-01
	U-238DHP	7.08E-01 +- 8.4E-01	Ų	pCi/g		O7.JO70	-0.5	0.700-01
SRTOT_SEP_PREC 3024346 BLANK	QC .							1.045.04
FGLT71AA	STRONTIUM	-1.75E-02 +- 5.2E-02	U	pCi/g	77.30%			1.31E-01
3024346 LCS								

STL Richland

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchQcSum mary V3.99 A97

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

# QC Results Summary STL Richland STLRL

Ordered by Method, Batch No, QC Type,.

**Report No.: 21956** 

**SDG No.:** W03954

Batch Work Order	Parameter	Result +- Uncertainty ( 2s)	Qual	Units	Yield	Recovery	Bias	MDC MDA
FGLT71AC	STRONTIUM	1.10E+00 +- 3.2E-01		pCi/g	78.60%	95.75%	0.0	1.26E-01
EPA7196	onuce.							
3024338 MATRIX		2.67E+01 +- 0.0E+00		mg/kg	N/A	61.76%	-0.4	8.00E-02
FGHGQ1AM	HEXCHROME	2.8/2+01 +- 0.02+00		mg/ng	IWA	01.7070	0.4	0.002 02
3024338 MATRIX		4.18E+01 +- 0.0E+00		mg/kg	N/A	95.95%	0.0	8.00E-02
FGHGQ1AM	HEXCHROME	4.18=+01 +- 0.0=+00		mg/kg	IVA	50.5070	0.0	0.002 02
3024338 LCS	LIEVOLIDOME	4.00E+01 +- 0.0E+00		mg/kg	N/A	91.88%	-0.1	8.00E-02
FGLR31AC	HEXCHROME	4.00=+01 +- 0.0=+00		mg/ ng	14/1	01.0070	0.1	5.552 5-
3024338 BLANK Q		3.50E-01 +- 0.0E+00	U	mg/kg	N/A			8.00E-02
FGLR31AA	HEXCHROME	3.502-01 +- 0.02+00	U	mgrkg	IVA			0.000
NI63LSC	•							
3024345 BLANK Q FGLTP1AA		5.31E+00 +- 7.1E+00	. u	pCi/g	73.04%			8.38E+00
	NI-63	5.51E+00 +- 7.1E+00	O	pong	10.0470			0.00=.00
3024345 LCS	NI-63	4.86E+02 +- 4.4E+01		pCi/g	82.70%	96.05%	0.0	7.47E+00
FGLTP1AC	INI-03	4.800+02 + 4.40+01		pong	02.7070	00.0070	•••	
906.0_H3_LSC								
3024349 BLANK Q	ю H-3	-3.86E-02 +- 1.2E-01	U	pCi/g	100.00%			2.86E-01
FGLVA1AA	п-3	-3.002-02 +- 1.22-01	Ū	porg	100.0070			
3024349 LCS FGLVA1AC	H-3	1.32E+00 +- 1.9E-01		pCi/g	100.00%	96.73%	0.0	2.92E-01
	п-3	1.522400 +- 1.52-01		pong	100.0074		• • •	
C14_LSC	\ <b>^</b>							
3024350 BLANK Q	C-14	7.83E-02 +- 1.5E-01	U	pCi/g	100.00%			3.22E-01
FGLVD1AA	U-14	7.03E-02 4- 1.3E-01	Ū	porg	100.0070			
3024350 LCS	0.14	7.15E+00 +- 3.9E-01		pCi/g	100.00%	99.00%	0.0	3.21E-01
FGLVD1AC	C-14	7.152400 4-3.92-01		porg	100.0070	00.0070		
PU241_IE_LSC	20							
3062565 BLANK C	RU-241	7.23E-01 +- 2.8E-01		pCi/g	157.00%			5.39E-01
FJHPC1AA				pCi/g	127.40%			6.51E-01
FJHPC1AD	PU-241	9.04E-01 +- 3.4E-01		porg	121.40/0			0.01L-VI
3062565 LCS	DU 044	1.075.01 . 1.65.00		pCi/g	61.50%	81.92%	-0.2	1.35E+00
FJHPC1AE	PU-241	1.87E+01 +- 1.6E+00		. •	-		- 1	1.12E+00
FJHPC1AC	PU-241	1.67E+01 +- 1.4E+00		pCi/g	74.60%	73.02%	-0.3	1.12E+UU
No. of Results:	39							

STL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchQcSum U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide. mary V3.99 A97

#### SAMPLE RESULTS

Lab Name:

STL Richland

Lot-Sample No.:

J3A220291-2

Count

Total

Client Sample ID: J00FB6

Result

NI63LSC

4.49E+00 U

2.8E+00

SDG:

MDC I MDA,

W03954

Report No.:

Rot Unit.

COC No.:

21956

B02-030-037

Yield

Collection Date: 1/21/2003 8:30:00 AM

Date: 19-Mar-03

Primary

Detector

LSC4

0.255

G

**Received Date:** 

1/22/2003 3:15:00 PM

Ordered by Client Sample ID, Batch No.

**Aliquot** 

Size

Matrix:

Analysis,

Rst/MDC.

Rst/TotUcert

(6.1)

0.7

(1.6)

2/7/03 10:43 a

Ratio U-234/238 = 1.1

SOIL

Total Sa

Size

CRDL(RL) **Prep Date Action Lev** Lc Qual Error (2\$) Uncert(2 s) **Parameter** Report DB ID: 9FGHGV10 Work Order: FGHGV1AA **EPA7196** Batch: 3024338 2.5 2/3/03 N/A (1.) 1.6E-01 3.50E-01 ma/kg **HEXCHROME** 3.50E-01 U G (4.4)3.50E-01 Work Order: FGHGV1AF Report DB ID: 9FGHGV10 Batch: 3024342 PUISO PLATE\_AEA ALP128 2.01 74.96% 0.37 2/7/03 04:20 p 1.19E-02 pCi/q PU-238 4.40E-03 U 8.8E-03 8.8E-03 G 1. 1.00E+00 2.01 **ALP128** 0.38 2/7/03 04:20 p 74.96% 1.3E-02 1.3E-02 2.11E-02 pCi/q 7.92E-03 U PU239/40 G 4.58E-03 1.00E+00 (1.3)Report DB ID: 9FGHGV10 Work Order: FGHGV1AG AMCMISO EIE PLT\_AEA Batch: 3024343 **ALP128** 2.01 2/11/03 09:44 a 100.67% (5.5)3.4E-02 3.6E-02 1.20E-02 pCi/a AM-241 6.62E-02 G 1.00E+00 (3.7)Work Order: FGHGV1AC Report DB ID: 9FGHGV10 UISO IE PLATE\_AEA Batch: 3024344 ALP3 1.01 76.82% (7.3)2/10/03 02:27 p 1.2E-01 1.5E-01 6.39E-02 pCi/a U-234 4.64E-01 G (6.2)2.19E-02 1.00E+00 ALP3 1.01 0.36 2/10/03 02:27 p 76.82% 3.1E-02 5.80E-02 pCi/g 3.1F-02 U-235 2.08E-02 U G 1.90E-02 1.00E+00 (1.3)ALP3 1.01 (5.9)2/10/03 02:27 p 7.37E-02 pCi/g 76.82% 1.4E-01 4.35E-01 1.2E-01 **U-238** G

2.68E-02

3.15E+00

1.00E+00

Report DB ID: 9FGHGV10

3.00E+01

90.31%

STL Richland ptSTLRchSample

Batch: 3024345

NI-63

MDCIMDALC - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume. U Qual - Analyzed for, but the result is less than the Mdc/MdalTotal Uncert or gamma scan software did not identify the nuclide.

6.45E+00 pCi/g

Work Order: FGHGV1AE

5.6E+00

#### **SAMPLE RESULTS**

Date: 19-Mar-03

Lab Name:

STL Richland

SDG:

W03954

Collection Date: 1/21/2003 8:30:00 AM

Lot-Sample No.: J3A220291-2

Report No.:

21956

**Received Date:** 

1/22/2003 3:15:00 PM

Client Sample ID: J00FB6

COC No.:

B02-030-037

Matrix:

SOIL Ordered by Client Sample ID, Batch No.

Pai	rameter	Result	Qual	Count Error ( 2 s)	Total Uncert(2 s)	MDC   MDA, Action Lev	Rpt Unit, Lc	Yleid CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch:	3024346	SRTOT_SEP_PR	ECIP_G	iPC	Work Order:	FGHGV1AD	Repo	rt DB ID: 9FG	HGV10				
S	TRONTIUM	2.75E-02	U	5.1E-02	5.2E-02	1.14E-01	pCi/g	89.20%	0.24	2/1/03 07:41 p		6.0	GPC31B
							5.30E-02		(1.1)			G	
Batch:	3024348	GAMMA_GS			Work Order:	FGHGV1AK	Repo	rt DB ID: 9FG	HGV10				
	BA-133	-9.60E <b>-</b> 03	U	1.4E-02	1.4E-02	2.00E-02	pCi/g		-0.48	2/3/03 07:10 a		362.7	GER6\$1
									-(1.3)			g	
	CO-60	6.59E-03	U	1.2E-02	1.2E-02	2.14E-02	pCi/g		0.31	2/3/03 07:10 a		362.7	GER6\$1
								5.00E-02	(1.1)			g	
	CS-137	2.88E-03	U	1.2E-02	1.2E-02	2.04E-02	pCi/g		0.14	2/3/03 07:10 a		362.7	GER6\$1
							-	1.00E-01	0.49			g	
	EU-152	4.97E-02	U	3.7E-02	3.7E-02	5.17E-02	pCi/g		0.96	2/3/03 07:10 a		362.7	GER6\$1
							-	1.00E-01	(2.7)			g	
	EU-154	-4.11E-02	U	4.1E-02	4.1E-02	6.54E-02	pCi/g		-0.63	2/3/03 07:10 a		362.7	GER6\$1
							. •	1.00E-01	-(2.)			g	
	EU-155	5.00E-02	U	2.8E-02	2.8E-02	4.69E-02	pCi/g		(1.1)	2/3/03 07:10 a		362.7	GER6\$1
		•						1.00E-01	(3.5)			g	
Batch:	3024349	906.0_H3_LSC			Work Order:	FGHGV1AJ	Rep	ort DB ID: 9FG	HGV10				
	H-3	2.73E-03	U	1.2E-02	1.3E-02	2.94E-02	pCi/g	100.00%	0.09	1/29/03 10:07 a		100.4	LSC6
							1.36E-02	4.00E+02	0.43			G	
Batch:	3024350	C14_LSC		M. O. W. L.	Work Order:	FGHGV1AL	Rep	ort DB ID: 9FG	SHGV10				
	C-14	8.28E-01		3.6E-01	3.9E-01	7.96E-01	pCi/g	100.00%	(1.)	1/29/03 04:59 a		2.018	LSC6
							3.82E-01	5.00E+01	(4.2)			G	

STL Richland rptSTLRchSample V3.99 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume. U Quai - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

#### **SAMPLE RESULTS**

Lab Name:

STL Richland

Lot-Sample No.: J3A220291-2

Client Sample ID: J00FB6

SDG:

W03954

Report No.:

21956

COC No.:

B02-030-037

Collection Date: 1/21/2003 8:30:00 AM

**Received Date:** 

1/22/2003 3:15:00 PM

Matrix:

SOIL

Ordered by Client Sample ID, Batch No.

Date: 19-Mar-03

Parameter	Result	Qual	Count Error ( 2s)	Total Unceri(2 s)	MDC   MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3051473	NI59_GS			Work Order:	FGHGV1AV	Repor	t DB ID: 9FG	HGV10		-		
NI-59	1.59E-01	U		2.5E+00	4.23E+00	pCi/g	85.62%	0.04	2/28/03 03:27 p		1.02	LEP3\$1
						1.82E+00	3.00E+01	0.13			g	
Batch: 3062565	PU241_IE_LSC			Work Order:	FGHGV2AT	Repoi	nt DB ID: 9FG	HGV20				
PU-241	2.19E+00		5.7E-01	6.8E-01	1.24E+00	pCi/g	66.70%	(1.8)	3/15/03 07:26 a		2.0	LSC4
						5.98E-01	1.50E+01	(6.4)			G	

No. of Results: 19 Comments:

#### **SAMPLE RESULTS**

Lab Name:

**STL Richland** 

Lot-Sample No.: J3A220291-1

Client Sample ID: J00FB7

SDG:

Report No.:

COC No.:

W03954

21956

B02-030-038

Collection Date: 1/21/2003 8:25:00 AM

**Received Date:** 

1/22/2003 3:15:00 PM

Date: 19-Mar-03

**Matrix:** 

SOIL

Ordered by Client Sample ID, Batch No.

Pai	rameter	Result	Qual	Count Error ( 2 s)	Total Uncert(2 s)	MDC   MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TofUcert	Analysis, Prep Date	Totai Sa Size	Aliquot Size	Primary Detector
Batch:	3024338	EPA7196		<del></del> .	Work Order:	FGHGQ1AA	Repo	rt DB ID: 9FG	HGQ10				
	EXCHROME	3.50E-01	U		0.0E+00	8.00E-02	mg/kg	N/A	(4.4)	2/3/03		2.5	
								3.50E-01	N/A			G	
Batch:	3024342	PUISO_PLATE_/	AEA		Work Order:	FGHGQ1AF	Repo	rt DB ID: 9FG	HGQ10				
	PU-238	0.00E+00	U	0.0E+00	2.3E-02	2.54E-02	pCi/g	35.26%	<b>O</b> .	2/7/03 04:19 p		2.05	ALP124
								1.00E+00	<b>O</b> .			G	
	PU239/40	9.38E-03	U	1.9E-02	1.9E-02	2.54E-02	pCi/g	35.26%	0.37	2/7/03 04:19 p		2.05	ALP124
		•						1.00E+00	1.	· .		G	
Batch:	3024343	AMCMISO_EIE_	PLT_AE	:A	Work Order:	FGHGQ1AG	Repo	ort DB ID: 9FG	HGQ10				
	AM-241	1.34E-02	U	1.9E-02	1.9E-02	1.82E-02	pCi/g	61.95%	0.74	2/11/03 09:44 a		2.05	ALP124
							<u>.</u>	1.00E+00	(1.4)			G	
Batch:	3024344	UISO_IE_PLATE	_AEA		Work Order:	FGHGQ1AC	Repo	ort DB ID: 9FG	HGQ10				
	U-234	4.69E-01		1.2E-01	1.5E-01	6.65E-02	pCi/g	81.97%	(7.1)	2/10/03 02:26 p		1.04	ALP1
							2.39E-02	1.00E+00	(6.4)			G	
	U-235	2.35E-02	U	2.8E-02	2.8E-02	4.37E-02	pCi/g	81.97%	0.54	2/10/03 02:26 p		1.04	ALP1
							1.25E-02	1.00E+00	(1.7)			G	
	U-238	5.17E-01		1.2E-01	1.6E-01	7.63E-02	pCi/g	81.97%	(6.8)	2/10/03 02:26 p		1.04	ALP1
							2.88E-02	1.00E+00	(6.6)			G	
				<del></del>				Ratio					
Batch:	3024345	NI63LSC				: FGHGQ1AE		ort DB ID: 9F0		0.07/00 07/10 -		0.255	LSC4
	NI-63	8.71E-01	U	2.5E+00	5.1E+00	6.04E+00		95.53%		2/7/03 07:19 a		0.255 G	L304
							2.95E+00	3.00E+01	0.34			<u> </u>	

STL Richland rptSTLRchSample V3.99 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume. U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

#### **SAMPLE RESULTS**

Lab Name:

STL Richland

Lot-Sample No.: J3A220291-1

Client Sample ID: J00FB7

SDG:

W03954

Report No.:

21956

COC No.:

B02-030-038

Collection Date: 1/21/2003 8:25:00 AM

Date: 19-Mar-03

**Received Date:** 

1/22/2003 3:15:00 PM

Matrix:

SOIL

Ordered by Client Sample ID, Batch No.

Pa	rameter	Result	Qual	Count Error ( 2 s)	Total Uncert(2 s)	MDC   MDA, Action Lev	Rpt Unit, Lc	Yleid CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch:	3024346	SRTOT_SEP_PF	RECIP_0	GPC	Work Order:	FGHGQ1AD	Rej	port DB ID: 9FGI	HGQ10		*		
s	TRONTIUM	5.27E-02	U	5.4E-02	5.6E-02	1.14E-01	pCi/g	88.10%	0.46	2/1/03 07:41 p		6.0	GPC31A
							5.30E-0	2	(1.9)			G	
Batch:	3024348	GAMMA_GS	-		Work Order:	FGHGQ1AK	Rej	port DB ID: 9FG	HGQ10				
	BA-133	3.53E-03	U	1.3E-02	1.3E-02	1.85E-02	pCi/g		0.19	2/3/03 05:14 p		385.4	GER8\$1
									0.55			g	
	CO-60	2.75E-04	U	9.6E-03	9.6E-03	1.66E-02	pCi/g		0.02	2/3/03 05:14 p		385.4	GER8\$1
								5.00E-02	0.06			g	
	CS-137	1.74E-02		1.5E-02	1.5E-02	1.62E-02	pCi/a		(1.1)	2/3/03 05:14 p		385.4	GER8\$1
	00 101	1.742 02		1.52 52				1.00E-01	(2.3)			g	
	EU-152	3.50E-02	11	3.2E-02	3.2E-02	4.57E-02	nCi/o		0.76	2/3/03 05:14 p		385.4	GER8\$1
	LQ-132	J.50L-02	Ü	U.LL UL	<b></b>		F9	1.00E-01	(2.2)	•		g	
	EU-154	-3.16E-02		3.1E-02	3.1E-02	4.94E-02	nCi/a		-0.64	2/3/03 05:14 p		385.4	GER8\$1
	EU-134	-3.10E-02		J.1L-02	5.1L-02	4.04E 0E	pong	1.00E-01	-(2.1)	•		g	
	<b>6</b> 11.466	0.445.00		2.6E-02	2.6E-02	4.37E-02	nCi/a		0.71	2/3/03 05:14 p		385.4	GER8\$1
	EU-155	3.11E-02	U	2.05-02	2.0E-02	4.57 L-V2	polg	1.00E-01	(2.4)	20.00 зактер		g	
Ratch:	3024349	906.0_H3_LSC	<del></del>		Work Order:	FGHGQ1AJ	Re	port DB ID: 9FG	HGQ10				
Daten.	H-3	9.63E-03		1.2E-02	1.3E-02	2.91E-02		100.00%		1/29/03 09:25 a		100.9	LSC6
	1,0	J.00L-00		,,,			1.35E-0	02 4.00E+02	(1.5)			G	
Batch:	3024350	C14_LSC			Work Order:	FGHGQ1AL	Re	eport DB ID: 9FG	SHGQ10				
	C-14	4.22E-01	U	3.4E-01	3.8E-01	7.98E-01	pCi/g	100.00%	0.53	1/29/03 04:17 a		2.013	LSC6
							3.83E-0	01 5.00E+01	(2.2)			G	
					*								

STL Richland rptSTLRchSample V3.99 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume. U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

#### **SAMPLE RESULTS**

Lab Name:

STL Richland

Lot-Sample No.: J3A220291-1

Client Sample ID: J00FB7

SDG:

**COC No.:** 

W03954

21956

Report No.:

B02-030-038

Collection Date: 1/21/2003 8:25:00 AM

**Received Date:** 

1/22/2003 3:15:00 PM

Matrix:

SOIL

Ordered by Client Sample ID, Batch No.

Date: 19-Mar-03

Paramete	er e	Result	Qual	Count Error ( 2 s)	Total Uncert(2 s)	MDC   MDA Action Lev		Yleid CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 30514	73 NI59_	GS			Work Order:	FGHGQ1AW	Repor	rt DB ID: 9FG	HGQ10				
NI-59		3.01E+00	U		2.4E+00	3.74E+00	pCi/g	85.85%	-0.8	2/28/03 03:13 p		1.02	LEP2\$1
							1.61E+00	3.00E+01	-(2.5)			g	
Batch: 30625	65 PU24	1_IE_LSC			Work Order:	FGHGQ2AV	Repo	rt DB ID: 9FG	HGQ20				
PU-24	<b>41</b>	2.44E+00		6.6E-01	7.9E-01	1.46E+00	pCi/g	56.60%	(1.7)	3/15/03 04:02 a		2.03	LSC4
							7.00E-01	1.50E+01	(6.2)			G	

No. of Results: 19

Comments:

Date: 19-Mar-03

#### **DUPLICATE RESULTS**

Lab Name:

STL Richland

Lot-Sample No.: J3A220291-2

Client Sample ID: J00FB6 DUP

SDG:

COC No.:

W03954

Report No. : 21956

B02-030-037

Collection Date: 1/21/2003 8:30:00 AM

**Received Date:** 

1/22/2003 3:15:00 PM

Matrix: SOIL

Par	ameter	Result, Orig Rst	Qual	Count Error ( 2 s)	Total Uncert(2 s)	MDC   MDA, Action Lev	Rpt Unit, CRDL	Yleid	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
	3024346	SRTOT_SEP_PRE	CIP_GP0		Work Order:	FGHGV1AN	Report D	B ID: FGH	IGV1NR	Orig Sa DB ID: 9FGH0	¥V10		
	STRONTIUM	3.96E-02	U	5.4E-02	5.5E-02	1.16E-01	pCi/g	87.80%	0.34	2/1/03 07:41 p		6.0	GPC31D
		2.75E-02	U	RPD	36.2				(1.5)			G	
Batch:	3024348	GAMMA_GS			Work Order:	FGHGV1AP	Report I	OB ID: FGI	GV1PR	Orig Sa DB ID: 9FGH	3V10		
	BA-133	3.35E-02	U	1.8E-02	1.8E-02	2.60E-02	pCi/g		(1.3)	2/3/03 05:17 p		362.7	GER1\$1
		-9.60E-03	U	RPD	360.8				(3.7)			g	
	CO-60	9.31E-03	U	1.3E-02	1.3E-02	2.31E-02	pCi/g		0.4	2/3/03 05:17 p		362.7	GER1\$1
		6.59E-03	U	RPD	34.2		5.00E-02		(1.4)			9	
	CS-137	3.49E-02	υ	1.5E-02	1.5E-02	2.55E-02	pCi/g		(1.4)	2/3/03 05:17 p		362.7	GER1\$1
		2.88E-03	U	RPD	169.5		1.00E-01		(4.7)			g	
	EU-152	-4.60E-02	U	4.9E-02	4.9E-02	5.64E-02	pCi/g		-0.82	2/3/03 05:17 p		362.7	GER1\$1
		4.97E-02	U	RPD	5133.6		1.00E-01		-(1.9)			g	
	EU-154	-2.04E-02	U	4.2E-02	4.2E-02	7.05E-02	pCi/g		-0.29	2/3/03 05:17 p		362.7	GER1\$1
		-4.11E-02	U	RPD	-67.2		1.00E-01		-0.97			9	
	EU-155	4.90E-02	U	3.9E-02	3.9E-02	6.52E-02	pCi/g		0.75	2/3/03 05:17 p		362.7	GER1\$1
	<u> </u>	5.00E-02	U	RPD	2.0		1.00E-01		(2.5)			g	
Batch:	3024349	906.0_H3_LSC			Work Order:	FGHGV1AQ	Report	DB ID: FG	HGV1QR	Orig Sa DB ID: 9FGH	GV10		
	H-3	5.96E-03	U	1.2E-02	1.3E-02	2.99E-02	pCi/g	100.009	% 0.2	1/29/03 10:49 a		100.6	LSC6
		2.73E-03	U	RPD	74.2		4.00E+02		0.91			G	
Batch	: 3024350	C14_LSC			Work Order:	FGHGV1AR	Report	DB ID: FG	HGV1RR	Orig Sa DB ID: 9FGH	IGV10		

STL Richland

99 A97

<sup>-</sup> Relative Percent Difference. RPD

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume. rptSTLRchDupV3.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

Date: 19-Mar-03

#### **DUPLICATE RESULTS**

Lab Name:

STL Richland

SDG:

W03954

Collection Date: 1/21/2003 8:30:00 AM

Lot-Sample No.: J3A220291-2

Report No.:

21956

Received Date:

1/22/2003 3:15:00 PM

Client Sample ID: J00FB6 DUP

COC No.:

B02-030-037

**Matrix:** 

SOIL

Parameter	Result, Orig Rst	Qual	Count Error ( 2 s)	Total Uncert(2 s	MDC   MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total \$a Size	Aliquot Size	Primary Detector
C-14	3.14E-01	U	3.4E-01	3.8E-01	7.98E-01	pCi/g	100.00%	0.39	1/29/03 05:41 a		2.012	LSC6
	8.28E-01		RPD	90.1		5.00E+01		(1.7)			G	<del></del>
Batch: 3051473	NI59_GS			Work Order:	FGHGV1AW	Report i	DB ID: FGH	IGV1WR	Orig Sa DB ID: 9FGH	GV10		
NI-59	1.13E+00	U		2.2E+00	3.91E+00	pCi/g	92.45%	0.29	2/28/03 05:02 p		1.0	LEP2\$1
	1.59E-01	U	RPD	150.8		3.00E+01		(1.)			g	

No. of Results: 10 Comments:

99 A97

Date: 19-Mar-03

#### **DUPLICATE RESULTS**

Lab Name:

STL Richland

SDG:

W03954

Collection Date: 1/21/2003 8:25:00 AM

Lot-Sample No.: J3A220291-1

Report No.:

21956

Received Date:

1/22/2003 3:15:00 PM

Client Sample ID: J00FB7 DUP

COC No.:

B02-030-038

**Matrix:** 

SOIL

Pai	cometer	Result, Orig Rst	Qual	Count Error ( 2 s)	Total Uncert(2 s)	MDC   MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch:	3024338	EPA7196			Work Order:	GHGQ1AN	Report D	B ID: FGH	IGQ1NR	Orig Sa DB ID: 9FGH	IGQ10	<del>_</del>	
	HEXCHROME	4.20E-01			0.0E+00	8.00E-02	mg/kg	N/A	(5.2)	2/3/03		2.5	
		3.50E-01	U	RPD	18.1		3.50E-01		N/A			G	
Batch:	3024342	PUISO_PLATE_AE	ĒA		Work Order:	FGHGQ1AQ	Report [	OB ID: FGH	IGQ1QR	Orig Sa DB ID: 9FGH	IGQ10		
	PU-238	5.92E-03	U	1.2E-02	1.2E-02	1.61E-02	pCi/g	57.59%	0.37	2/7/03 04:20 p		2.0	ALP127
		0.00E+00	U	RPD	200.0		1.00E+00		1.			G	
	PU239/40	5.92E-03	U	1.2E-02	1.2E-02	1.60E-02	pCi/g	57.59%	0.37	2/7/03 04:20 p		2.0	ALP127
		9.38E-03	U	RPD	45.2		1.00E+00		1.			G	
										Alpha Spec	Result Sum	= 1.2E-02	
Batch:	3024343	AMCMISO_EIE_PI	LT_AEA		Work Order:	FGHGQ1AR	Report I	DB ID: FGI	IGQ1RR	Orig Sa DB ID: 9FG	IGQ10		
	AM-241	3.03E-02		2.5E-02	2.5E-02	1.37E-02	pCi/g	85.81%	(2.2)	2/11/03 09:44 a		2.0	ALP127
		1.34E-02	U	RPD	77.1		1.00E+00		(2.4)			G	
										Alpha Spec	Result Sum	= 4.2E-02	
Batch:	3024344	UISO_IE_PLATE_	AEA		Work Order:	FGHGQ1AT	Report I	DB ID: FG	-IGQ1TR	Orig Sa DB ID: 9FG	1 <b>GQ</b> 10		
	U-234	4.53E-01		1.1E-01	1.4E-01	3.79E-02	pCi/g	88.39%	(12.)	2/10/03 02:26 p		1.02	ALP2
		4.69E-01		RPD	3.4		1.00E+00		(6.5)			G	
	U-235	5.36E-03	U	1.4E-02	1.4E-02	3.21E-02	pCi/g	88.39%	0.17	2/10/03 02:26 p		1.02	ALP2
		2.35E-02	U	RPD	125.7		1.00E+00		0.78			G	
	U-238	4.52E-01		1.1E-01	1.4E-01	4.23E-02	pCi/g	88.39%	(10.7)	2/10/03 02:26 p		1.02	ALP2
		5.17E-01		RPD	13.5		1.00E+00		(6.4)			G	

STL Richland rptSTLRchDupV3.

RPD - Relative Percent Difference.

Date: 19-Mar-03

#### **DUPLICATE RESULTS**

Lab Name:

STL Richland

Lot-Sample No.: J3A220291-1

Client Sample ID: J00FB7 DUP

SDG:

COC No.:

W03954

Report No.:

21956

B02-030-038

Collection Date: 1/21/2003 8:25:00 AM

Received Date:

1/22/2003 3:15:00 PM

**Matrix:** 

SOIL

Parc	ometer	Result, Orig Rst	Qual	Count Error ( 2 s)	Total Uncert(2 s)	MDC   MDA, Action Lev	Rpt Unit, CRDL	Yleld	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch:	3024345 NI-63	NI63LSC 7.53E+00 8.71E-01	U	2.7E+00 RPD	Work Order: 5.5E+00	FGHGQ1AU 6.10E+00	<del>-</del>	94.34%		Orig Sa DB ID: 9FGH 2/7/03 09:01 a	GQ10	0.257 G	LSC4
Batch:	3062565 PU-241	PU241_IE_LSC 2.67E+00 2.44E+00		6.7E-01 <b>RPD</b>	Work Order: 8.1E-01	FGHGQ2A1 1.48E+00	<del>-</del>	DB ID: FGF 56.30%		Orig Sa DB ID: 9FGH 3/15/03 05:44 a	IGQ20	2.0 G	LSC4

No. of Results: 9

Comments:

99 A97

### FORM II **BLANK RESULTS**

Date: 19-Mar-03

Lab Name: STL Richland

Matrix: SOIL

SDG:

W03954

**Report No.: 21956** 

Parameter	Result	Qual	Count Error ( 2 \$)	Total Uncert(2 s)	MDC MD	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3024338	EPA7196			Work Order:	FGLR31AA	Report	DB ID: FGL	R31AB	<del></del>			
HEXCHROME	3.50E-01	U		0.0E+00	8.00E-02	mg/kg	N/A	(4.4)	2/3/03		2.5	
						3.50E-01		N/A			G	
Batch: 3024350	C14_LSC	·-		Work Order:	FGLVD1AA	Repor	t DB ID: FGL	.VD1AB				
C-14	7.83E-02	U	1.4E-01	1.5E-01	3.22E-01	pCi/g	100.00%	0.24	1/29/03 02:53 a		5.0	LSC6
					1.54E-01	5.00E+01		(1.)			G	
Batch: 3024342	PUISO_PLAT	E_AEA		Work Order:	FGLTC1AA	Repor	t DB ID: FGI	TC1AB			<u>.</u>	<u> </u>
PU-238	0.00E+00	U	0.0E+00	6.6E-02	7.33E-02	pCi/g	12.33%	0.	2/7/03 04:21 p		2.0	ALP129
						1.00E+00		0.			G	
PU239/40	0.00E+00	U	0.0E+00	6.6E-02	7.32E-02	pCi/g	12.33%	0.	2/7/03 04:21 p		2.0	ALP129
						1.00E+00		0.			G	
Batch: 3024343	AMCMISO_E	IE_PLT_	AEA	Work Order:	FGLTF1AA	Repor	t DB ID: FG	LTF1AB		<u> </u>		
AM-241	8.56E-03	U	1.2E-02	1.2E-02	1.16E-02	pCi/g	97.47%	0.74	2/11/03 09:44 a		2.0	ALP129
						1.00E+00		(1.4)			G	
Batch: 3024344	UISO_IE_PL	ATE_AE	Α	Work Order	FGLTK1AA	Repo	rt DB ID: FG	LTK1AB				
U-234	-5.28E-03	U	1.5E-02	1.5E-02	5.89E-02	pCi/g	90.03%	-0.09	2/10/03 02:27 p		1.0	ALP4
					2.06E-02	1.00E+00		-0.69			G	
U-235	-3.95E-03	U	4.6E-03	4.6E-03	4.16E-02	pCi/g	90.03%	-0.1	2/10/03 02:27 p		1.0	ALP4
					1.19E-02	1.00E+00		-(1.7)			G	
U-238	-3.96E-03	U	1.5E-02	1.5E-02	5.66E-02	pCi/g	90.03%	-0.07	2/10/03 02:27 p		1.0	ALP4
					1.94E-02	1.00E+00		-0.52			G	
							Ratio	U-234/238 = 1	.3		<u></u>	
Batch: 3051473	NI59_GS			Work Order	: FH0WV1AA	Repo	rt DB ID: FH	OWV1AB				

STL Richland rptSTLRchBlank V3.99 A97

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

# FORM II BLANK RESULTS

Date: 19-Mar-03

Lab Name: STL Richland

SDG:

Matrix: SOIL

**Report No.: 21956** 

W03954

Parameter	Result	Qual	Count Error ( 2 \$)	Total Uncert(2 s)	MDC MD	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
NI-59	2.09E+00	U	-	2.9E+00	5.29E+00	pCi/g	69.40%	0.39	2/28/03 09:40 p		1.0	LEP3\$1
					1.84E+00	3.00E+01		(1.4)			g	
Batch: 3024345	NI63LSC			Work Order:	FGLTP1AA	Repor	DB ID: FGL	TP1AB				
NI-63	5.31E+00	U	3.5E+00	7.1E+00	8.38E+00	pCi/g	73.04%	0.63	2/7/03 12:24 p		0.25	LSC4
					4.09E+00	3.00E+01		(1.5)			G	
Batch: 3062565	PU241_IE_LS	SC .		Work Order:	FJHPC1AA	Repor	DB ID: FJH	PC1AB		_		
PU-241	7.23E-01		2.4E-01	2.8E-01	5.39E-01	pCi/g	157.00%	(1.3)	3/15/03 09:08 a		2.0	LSC4
					2.59E-01	1.50E+01		(5.1)			G	
Batch: 3062565	PU241_IE_LS	SC SC		Work Order:	FJHPC1AD	Repor	t DB ID: FJH	PC1DX				
PU-241	9.04E-01		2.9E-01	3.4E-01	6.51E-01	pCi/g	127.40%	(1.4)	3/15/03 12:32 p		2.0	LSC4
					3.13E-01	1.50E+01		(5.2)			G	
Batch: 3024349	906.0_H3_L5	 iC	<u> </u>	Work Order:	FGLVA1AA	Repor	t DB ID: FGI	VA1AB			<u> </u>	
н-з	-3.86E-02	U	1.1E-01	1.2E-01	2.86E-01	pCi/g	100.00%	-0.13	1/29/03 08:01 a		10.0	LSC6
					1.32E-01	4.00E+02		-0.64			G	
Batch: 3024348	GAMMA_GS			Work Order:	FGLT81AA	Repo	t DB ID: FGI	LT81AX				
BA-133	4.43E-03	U	1.2E-02	1.2E-02	1.71E-02	pCi/g		0.26	2/3/03 05:15 p		348.0	GER2\$1
								0.75			g	
CO-60	-5.91E-03	U	7.7E-03	7.7E-03	1.27E-02	pCi/g		-0.46	2/3/03 05:15 p		348.0	GER2\$1
						5.00E-02		-(1.5)			g	
CS-137	2.52E-03	U	8.2E-03	8.2E-03	1.44E-02	pCi/g		0.18	2/3/03 05:15 p		348.0	GER2\$1
						1.00E-01		0.62			g	

STL Richland rptSTLRchBlank V3.99 A97 MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume. U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

#### **BLANK RESULTS**

Lab Name: STL Richland

SDG:

W03954

Date: 19-Mar-03

Matrix: SOIL

**Report No.: 21956** 

Parameter	Result	Qual	Count Error ( 2 s)	Total Uncert(2 s)	MDC MD	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Totat Sa Size	Aliquot Size	Primary Detector
EU-152	-6.83E-03	U	2.5E-02	2.5E-02	3.96E-02	pCi/g		-0.17	2/3/03 05:15 p		348.0	GER2\$1
						1.00E-01		-0.55			g	
EU-154	-1.50E-02	U	2.2E-02	2.2E-02	3.61E-02	pCi/g		-0.41	2/3/03 05:15 p		348.0	GER2\$1
						1.00E-01		-(1.4)			g	
EU-155	-2.15E-02	U	3.1E-02	3.1E-02	5.10E-02	pCi/g		-0.42	2/3/03 05:15 p		348.0	GER2\$1
						1.00E-01		-(1.4)			9	
Batch: 3024346	SRTOT_SEP	PRECIF	P_GPC	Work Order:	FGLT71AA	Repor	DB ID: FGI	LT71AB				
STRONTIUM	-1.75E-02	U	5.2E-02	5.2E-02	1.31E-01	pCi/g	77.30%	-0.13	2/1/03 07:41 p		6.0	GPC32A
					6.05E-02			-0.67			G	

No. of Results: 20 Comments:

#### **LCS RESULTS**

Lab Name: STL Richland

Matrix: SOIL

SDG:

W03954

Date: 19-Mar-03

**Report No.:** 21956

Po	arameter	Result	Qual	Count Error ( 2 s)	Total Uncert(2 s)	MDC MD	Report Unit		Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch:	3024338	EPA7196			Work Orde	r; FGLR31A	.c	Report DB ID:	FGLR31A	s				
H	EXCHROME	4.00E+01			0.0E+00	8.00E-02	mg/kg	N/A	4.35E+0	1	91.88%	2/3/03	2.5	
								Rec Limits:	80	120	-0.1		G	
Batch:	3024350	C14_LSC			Work Orde	r: FGLVD1A	C	Report DB ID:	FGLVD1C	s				
	C-14	7.15E+00		2.9E-01	3.9E-01	3.21E-01	pCi/g	100.00%	7.23E+0	0 2.3E-01	99.00%	1/29/03 03:35 a	5.0	LSC6
								Rec Limits:	70	130	0.0		G	
Batch:	3024342	PUISO_PLATE_	AEA		Work Orde	r: FGLTC1A	C	Report DB ID:	FGLTC1C	S		···		
	PU239/40	4.09E+00		8.4E-01	1.5E+00	1.18E-01	pCi/g	7.58%	3.44E+0	0 1.7E-01	118.97%	2/7/03 04:21 p	2.0	ALP130
								Rec Limits:	70	130	0.2		G	
Batch:	3024343	AMCMISO_EIE	PLT_A	\EA	Work Orde	r: FGLTF1A	C	Report DB ID:	FGLTF1C	s				
	AM-241	4.99E+00		3.1E-01	9.2E-01	1.32E-02	pCi/g	85.39%	4.51E+0	0 1.5E-01	110.57%	2/11/03 09:44 a	2.0	ALP130
								Rec Limits:	70	130	0.1		G	
Batch:	3024344	UISO_IE_PLAT	E_AEA		Work Orde	r: FGLTK1A	C	Report DB ID:	FGLTK10	s				
	U-234	3.06E+00		2.7E-01	6.4E-01	3.81E-02	pCi/g	93.76%	3.34E+0	0 2.1E-02	91.51%	2/10/03 02:27 p	1.0	ALP8
								Rec Limits:	20	105	-0.1		G	
	U-238	3.44E+00		2.9E-01	7.1E-01	3.81E-02	pCi/g	93.76%	3.50E+0	0 2.2E-02	98.25%	2/10/03 02:27 p	1.0	ALP8
								Rec Limits:	20	105	0.0		G	
Batch:	3051473	NI59_GS			Work Orde	er: FH0WV1.	AC	Report DB ID:	FH0WV1	CS			··	
	NI-59	4.24E+02			4.8E+01	8.77E+00	pCi/g	65.18%	3.75E+0	2 1.2E+01	113.10%	2/28/03 09:37 p	1.0	LEP2\$1
								Rec Limits:			0.1		g	
Batch:	3024345	NI63LSC		· · · · · · · · · · · · · · · · · · ·	Work Orde	er: FGLTP1/	AC .	Report DB ID:	FGLTP10	S				
	NI-63	4.86E+02		9.1E+00	4.4E+01	7.47E+00	pCi/g	82.70%	5.06E+0	2 1.7E+01	96.05%	2/7/03 02:06 p	0.25	LSC4
								Rec Limits:	70	130	0.0		G	

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# FORM II LCS RESULTS

Date: 19-Mar-03

Lab Name: STL Richland

Matrix: SOIL

SDG:

W03954

**Report No.:** 21956

Parameter	Result Qual	Count Error ( 2 s)	Total Uncert(2 s)	MDCIMD	Report Unit		Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 3062565	PU241_IE_LSC		Work Orde	r: FJHPC1A	C	Report DB ID:	FJHPC1CS	3				
PU-241	1.67E+01	8.5E-01	1.4E+00	1.12E+00	pCi/g	74.60%	2.29E+01	1.0E+00	73.02%	3/15/03 10:50 a	2.0	LSC4
						Rec Limits:	70	130	-0.3		G	
Batch: 3062565	PU241_IE_LSC		Work Orde	r: FJHPC1A	Æ	Report DB ID:	FJHPC1EN	4				
PU-241	1.87E+01	1.0E+00	1.6E+00	1.35E+00	pCi/g	61.50%	2.29E+01	1.0E+00	81.92%	3/15/03 02:14 p	2.0	LSC4
						Rec Limits:	70	130	-0.2		G	
Batch: 3024349	906.0_H3_LSC	<del></del>	Work Orde	r: FGLVA1/	<b>AC</b>	Report DB ID:	FGLVA1CS	3				
Н-3	1.32E+00	1.9E-01	1.9E-01	2.92E-01	pCi/g	100.00%	1.37E+00	4.7E-02	96.73%	1/29/03 08:43 a	10.0	LSC6
						Rec Limits:	70	130	0.0		G	
Batch: 3024348	GAMMA_GS		Work Orde	r: FGLT81A	C	Report DB ID:	FGLT81CN	A				-
CS-137	2.75E-01	5.0E-02	5.0E-02	3.76E-02	pCi/g		2.88E-01	1.3E-02	95.36%	2/3/03 05:16 p	200.01	GER6\$1
						Rec Limits:	70	130	0.0		g	
K-40	1.87E+01	2.5E+00	2.5E+00	3.03E-01	pCi/g		1.95E+0°	1.9E+00	95.83%	2/3/03 05:16 p	200.01	GER6\$1
						Rec Limits:		130	0.0		9	
RA-226	1.05E+00	1.6E-01	1.6E-01	6.21E-02	pCi/g		1.15E+0	5.2E-02		2/3/03 05:16 p	200.01	GER6\$1
						Rec Limits:	70	130	-0.1	0/0/00 05 40	g 200 24	055004
RA-228	2.06E+00	3.1E-01	3.1E-01	1.21E-01	pCi/g		1.87E+0			2/3/03 05:16 p	200.01	GER6\$1
				0 TEE 04	014	Rec Limits:	70	130	0.1	0/9/09 05:46 5	g 200.01	GER6\$1
U-238DHP	7.08E-01 U	8.4E-01	8.4E-01	8.75E-01	pCvg	Doo Limite.		0 5.4E-02		2/3/03 05:16 p		GERODI
						Rec Limits:	70	130	-0.3		g	
Batch: 3024346				er: FGLT71/		•						
STRONTIUM	1.10E+00	1.3E-01	3.2E-01	1.26E-01	pCi/g	78.60%				2/1/03 07:41 p	6.0	GPC32B
						Rec Limits:	20	105	0.0		G	

Date: 19-Mar-03

W03954

SDG:

**LCS RESULTS** 

Lab Name: STL Richland

hland

Matrix: SOIL Report No.: 21956

Analysis, **Primary** Result Recovery, Aliquot Count Total Report Expected Prep Date Size Detector Qual Error (2s) Uncert(2 s) MDCIMD Yield Uncert Bias **Parameter** Unit Expected

No. of Results: 17

Comments:

Bias

#### **MATRIX SPIKE RESULTS**

Lab Name:

STL Richland

SDG:

W03954

Lot-Sample No.: J3A220291-1

**Report No.: 21956** 

Matrix: SOIL

Date: 19-Mar-03

Parameter	SpikeResult, Orig Rst	Qual	Count Error ( 2 s)	Total Uncert(2 s)	MDCIMD	Rpt Unit, CRDL	Yield	Rec- overy	•		Analysis, tep Date	Aliquot Size	Primary Detector
Batch: 3024338	EPA7196			Work Order:	FGHGQ1AM	Rep	ort DB ID:	FGHGQ1MW	Orig S	Sa DB ID: 9F	GHGQ10	<del></del> -	
HEXCHROME	2.67E+01			0.0E+00	8.00E-02	mg/kg	N/A	61.76%	4.32E+01		2/3/03	2.5	
	3.50E-01	RPC	194.8									G	
HEXCHROME	4.18E+01			0.0E+00	8.00E-02	mg/kg	N/A	95.95%	4.35E+01		2/3/03	2.5	
	3.50E-01	RPE	196.7	3.3								G	<u></u> -

No. of Results: 2

Comments:

RER

Bias



# Data Review Checklist RADIOCHEMISTRY First Level Review

First Level Review	· <del>-</del>		$\supset$	
12 1000001			T	-
Lot Number: US H 30097				
Client ID:				
Due Date: 2/13/05				
OC Batch Number: 3009343			<u> </u>	
Method Test Parameter: SXAm				
Matrix: SUIC				
SDG Number: W03904		<del></del>	<del></del>	
000707	<del></del>			
Review Item	Yes (√)	No (√)	N/A (√)	7
A. COC		1		7
1. Is the ICOC page complete (includes all applicable analysts, dates,			1	1
SOP numbers and revisions)?		1	· [	1
B. QC Batch	<del></del>	<del>}</del>	1	7
Do the Summary/Detailed Reports include a calculated result for		Ì	i	1
each sample listed on the QC Batch Sheet?		1		}
2. Are the QC appropriate for the analysis included in the batch?		<del> </del>	<del> </del>	7
3. Is the Analytical Batch Worksheets complete (includes, as	<del></del>	<del>                                     </del>	<del></del>	╡
appropriate, volumes, count times, etc.)?		+		-
4. Does the Worksheets include a Tracer Vial label for each sample?		<del> </del>	<del> </del>	
C. QC & Samples			<del>                                     </del>	7
1. Is the blank result, yield and MDA within contract limits?			Ì	İ
2. Is the LCS result, yield and MDA within contract limits?	<del></del>	<del> </del>	<del> </del>	┥ ・
3. Are the MS/MSD results, yields and MDAs within contract limits?	· <del></del>	<del> </del>	<del> </del>	-{
4. Are the duplicate results, yields and MDAs within contract limits?		<del> </del>	<del></del>	┨ ・.
Are the sample yields and MDAs within contract limits?		<del> </del> -	<del> </del>	-
D. Raw Data		<del> </del>	<del></del>	-
-	_	]	1	
Were results calculated in the correct units?		<del> </del>	<del> </del>	4
. Were analysis volumes entered correctly?		<del> </del>	<del>  </del>	+
Were yields entered correctly?		<del> </del>	+	1
Were spectra reviewed/meet contractual requirements?		<del> </del>	<del></del>	1
. Were raw counts reviewed for anomalies?		<del> </del>	<del> </del>	1
E. Other		1		
. Are all Nonconformances included and noted?		<del></del>	<del> </del>	}
. Are all required forms filled out?		<b></b>	ļ	<b>.</b> .
. Was the correct methodology used?		<b></b>	<del> </del>	1
. Was transcription checked?		ļ	<del> </del>	<u> </u>
. Were all calculations checked at a minimum frequency?		<b> </b>	<del>  </del>	{
. Are worksheet entries complete and correct?		<u> </u>	<u> </u>	l
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Comments on any "No" response:			<u> </u>	
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First Level Review: Yam andusar	<u></u>	Date: 🚅	2-11-03	<u>:                                    </u>

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#### Data Review Checklist RADIOCHEMISTRY Second Level Review

<ul> <li>4. Is the blank result &gt; the Contract Detection Limit but the sample result &lt; the Contract Detection Limit?</li> <li>5. Is the LCS recovery with contract acceptance criteria?</li> <li>7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?</li> </ul>	Yes (√)	No (√)	
1. Are the sample yields within acceptance criteria?  2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?  3. Are the correct isotopes reported?  B. QC Samples  1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	/		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?  3. Are the correct isotopes reported?  B. QC Samples  1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	<i>J</i>		
Detection Limit?  3. Are the correct isotopes reported?  B. QC Samples  1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	<i>J</i>		
B. QC Samples  I. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?  Does the blank result meet the Contract criteria?  I. Is the blank result > the Contract Detection Limit?  I. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  I. Is the LCS recovery with contract acceptance criteria?  I. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit? 2. Does the blank result meet the Contract criteria? 3. Is the blank result < the Contract Detection Limit? 4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit? 5. Is the LCS recovery with contract acceptance criteria? 7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?			
Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?			
Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?			
3. Is the blank result < the Contract Detection Limit? 4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit? 5. Is the LCS recovery with contract acceptance criteria? 7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?			
<ul> <li>3. Is the blank result &lt; the Contract Detection Limit?</li> <li>4. Is the blank result &gt; the Contract Detection Limit but the sample result &lt; the Contract Detection Limit?</li> <li>5. Is the LCS recovery with contract acceptance criteria?</li> <li>7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?</li> </ul>			
result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	· · · · · ·		<u>, , , , , , , , , , , , , , , , , , , </u>
5. Is the LCS recovery with contract acceptance criteria? 7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?		· 1	_ ا
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?			
Limit?			<u> </u>
	_		
B. Do the MS/MSD results and yields meet acceptance criteria?		ļ	<u> </u>
Do the duplicate sample results and yields meet acceptance			
riteria?		<u> </u>	<u> </u>
C. Other		i	
. Are all Nonconformances included and noted?			
. Are all required forms filled out?	<u> </u>	ļ	
. Was the correct methodology used?		ļ	
. Was transcription checked?		<u></u>	
. Were all calculations checked at a minimum frequency?		<u> </u>	
. Were units checked?		<u> </u>	



LS-038A, Rev. 9, 8/02

# Data Review Checklist RADIOCHEMISTRY First Level Paview

No (V)	N/A (V
No (√)	N/A (V
No (√)	N/A (√
No (V)	N/A (√
No (V)	N/A (V
No (V)	N/A (√
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#### Data Review Checklist RADIOCHEMISTRY Second Level Review

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis	<del>                                     </del>		
Are the sample yields within acceptance criteria?	/ /		
2. Is the sample Minimum Detectable Activity < the Contract			
Detection Limit?			
3. Are the correct isotopes reported?	1		
B. QC Samples			
1. Is the Minimum Detectable Activity for the blank result ≤ the		ľ	1
Contract Detection Limit?	V		
2. Does the blank result meet the Contract criteria?	~		
3. Is the blank result < the Contract Detection Limit?	~		
4. Is the blank result > the Contract Detection Limit but the sample			
esult < the Contract Detection Limit?			
5. Is the LCS recovery with contract acceptance criteria?	~	\ \sigma_	
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection	,		ا ا
_imit?	L N		
. Do the MS/MSD results and yields meet acceptance criteria?			<u> </u>
Do the duplicate sample results and yields meet acceptance			
riteria?			
C. Other			-
. Are all Nonconformances included and noted?			
. Are all required forms filled out?	^		<u> </u>
. Was the correct methodology used?		<u> </u>	
. Was transcription checked?		<del> </del>	<del></del>
. Were units checked?		<u> </u>	<u> </u>
Were all calculations checked at a minimum frequency?  Were units checked?  Comments on any "No" response:	۷۰ بلانه	٥c.	
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### Clouseau **Nonconformance Memo**



NCM #: **J07283** 

NCM Initiated By: Pam Anderson

Date Opened: 02/11/03

Date Closed: N/A

Classification: Anomaly

Status: PMREVIEW

Production Area: Environmental - Sep

Tests: Pulso by ALP

Lot #'s (Sample #'s): J3A220291 (1,2); J3A240000 (342)

QC Batch: 3024342

Nonconformance: Tracer yield out of limits

Subcategory: Unknown

#### Problem Description / Root Cause

<u>Name</u>

<u>Date</u>

Description

Pam Anderson

02/11/03 QC yields between 8% and 12%. Sample yields OK. LCS recoveries OK and CRDLs

met. Client contacted. They will accept.

#### Corrective Action

Name

**Date** 

**Corrective Action** 

Pam Anderson

02/11/03 Note in case narrative.

#### Approval History

<u>Name</u>

**Date Approved:** 

**Position** 

Pam Anderson

02/11/03

Group Leader

Date Printed: 02/11/03

#### Gillespie, Barbara

From:

Giroir, Bev

Sent:

Tuesday, February 11, 2003 3:27 PM

To: Cc: Gillespie, Barbara Kessner, Joan H

Subject:

FW: W03904 (Really W03954)

Barb, Joan and Rich have decided to report the data as is with the problem noted in the case narrative.

Beverly I Giroir Project Manager STL Richland 509-375-3131

The information contained in this message is privileged and confidential information intended only for use of the addressee. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone at 509-375-3131.

----Original Message----

From: Kessner, Joan H [mailto:JHKessne@mail.bhi-erc.com]

Sent: Tuesday, February 11, 2003 12:52 PM

To: Giroir, Bev Subject: RE: W03904

Bev--

Sorry this is taking so long.....
Rich has wandered off to a meeting and I keep missing him.
He will be meeting with me later this afternoon on another topic, but I promise we will deal with this first!! Joan

----Original Message----

From: BGiroir@stl-inc.com [mailto:BGiroir@stl-inc.com]

Sent: Tuesday, February 11, 2003 7:10 AM

To: JHKessne@mail.bhi-erc.com Cc: BGillespie@stl-inc.com

Subject: W03904

Joan, Good morning!!!!

The subject WO has low Pu tracer yields. Here's the stats:

Samples J00FB6 and J00FB7 from W03904 have low tracer yields of 35.3%, 75% and duplicate of 57.6%. The sample results are non-detects, below the MDC of  $\sim 0.02$  pCi/g. The batch process blank has a tracer yield of 12.3% with an MDC of 0.07 pCi/g, result less than MDC. The matrix blank is a 10% tracer yield with an MDC of 0.092 pCi/g with a result less than MDC. The matrix spike had a tracer yield of 8.1%, recovery of 102%, MDC of 0.112. The LCS has a tracer recovery of 7.6%, recovery of 119% and an MDC of 0.118 pCi/g.

This SDG is due tomorrow, 2/12/03. Will you please provide direction as to a) reporting the data or b) reanalyzing the samples. If reanalysis is chosen, please provide needed report date.

Hey thanks for the info, Bev

Beverly I Giroir Project Manager STL Richland 509-375-3131

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#### Gillespie, Barbara

From:

Gillespie, Barbara

Sent:

Monday, February 10, 2003 5:18 PM

To:

Giroir, Bev

Subject:

**BHI SDG W03904** 

Bev.

Pam gave me a Pu-iso data package that has some really low tracer yields for the subject SDG. This SDG is due to the client 2/12/03. Please ask the client if we can report this data or if we need to reanalyze.

The samples are J00FB6 and J00FB7. Their results are non-detects below the MDC of ~0.02 pCi/g. The sample yields are 35.3%, 75%, duplicate at 57.6%. The batch process blank has a tracer yield of 12.3% with an MDC of 0.07 pCi/g, result less than MDC. The matrix blank is a 10% tracer yield with an MDC of 0.092 pCi/g with a result less than MDC. The matrix spike had a tracer yield of 8.1%, recovery of 102%, MDC of 0.112. The LCS has a tracer recovery of 7.6%, recovery of 119% and an MDC of 0.118 pCi/g.

Please ask for direction.

Barbara Gillespie
Project and Client Services
STL Richland
2800 George Washington Way
Richland, WA 99352
(509)375-3131
(509)375-5590
bgillespie@stl-inc.com

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LS-038A, Rev. 9, 8/02

### Data Review Checklist

RADIOCHEMISTR First Level Review	Y		$\bigcirc$
First Level Review			1
Lot Number: 25 AD2049/			· · · · · · · · · · · · · · · · · · ·
Client ID: (SH)			
Due Date: 2/17/0	***************************************		· · ·
OC Batch Number: 304364			
Method Test Parameter: SoPu	<del></del>		<del></del>
Matrix: SSIL		<del></del>	<del></del>
SDG Number: WO 3954			<del></del>
3DO 14umber. 200 393 -			
Review Item	Yes (√)	No (√)	N/A (√)
A. COC		1	
1. Is the ICOC page complete (includes all applicable analysts, dates,		1	1 1
SOP numbers and revisions)?		1	1 1
B. QC Batch			
. Do the Summary/Detailed Reports include a calculated result for	<u>~</u>	1	
ach sample listed on the QC Batch Sheet?		1	1
. Are the QC appropriate for the analysis included in the batch?			
. Is the Analytical Batch Worksheets complete (includes, as			1
ppropriate, volumes, count times, etc.)?		<u> </u>	<u> </u>
. Does the Worksheets include a Tracer Vial label for each sample?			
C. QC & Samples			
. Is the blank result, yield and MDA within contract limits?			
. Is the LCS result, yield and MDA within contract limits?			
. Are the MS/MSD results, yields and MDAs within contract limits?			
. Are the duplicate results, yields and MDAs within contract limits?			
. Are the sample yields and MDAs within contract limits?	-		
). Raw Data			<del></del>
Were results calculated in the correct units?	_		1 .
Were analysis volumes entered correctly?			
Were yields entered correctly?			
Were spectra reviewed/meet contractual requirements?			1
Were raw counts reviewed for anomalies?			
. Other			<del>                                     </del>
Are all Nonconformances included and noted?			
Are all required forms filled out?			<del></del>
Was the correct methodology used?			<del>  </del> .
Was transcription checked?		<del></del>	<del> </del>
Were all calculations checked at a minimum frequency?			<del> </del>
Are worksheet entries complete and correct?			
omments on any "No" response: 3/ankyield his Will not transfer this as it is on 101486		Il ampt Pu zy	data.
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irst Level Review: Part August 200		Date: ¬	?-/>~?



	_
OC Batch Number:	3062564
<del></del>	

Review Item	Yes (V)	No (V)	N/A (V)
A. Sample Analysis		1	T
I. Are the sample yields within acceptance criteria?			-
2. Is the sample Minimum Detectable Activity < the Contract			
Detection Limit?			1
3. Are the correct isotopes reported?		7	1
B. QC Samples	<del> </del>		7
<ol> <li>Is the Minimum Detectable Activity for the blank result ≤ the</li> </ol>		1	
Contract Detection Limit?		1	
2. Does the blank result meet the Contract criteria?	<b>✓</b>	- V	T
3. Is the blank result < the Contract Detection Limit?	1		1
4. Is the blank result > the Contract Detection Limit but the sample		T	
esult < the Contract Detection Limit?		·	
. Is the LCS recovery with contract acceptance criteria?			
. Is the LCS Minimum Detectable Activity \( \le \) the Contract Detection			}
imit?			1
. Do the MS/MSD results and yields meet acceptance criteria?			
. Do the duplicate sample results and yields meet acceptance			
riteria?		·	,
C. Other		``	
. Are all Nonconformances included and noted?	•	l	
Are all required forms filled out?	<u> </u>		
Was the correct methodology used?			
Was transcription checked?			
Were all calculations checked at a minimum frequency?	1		
Were units checked?			
Comments on any "No" response:			
	<del></del>	<del></del>	
·		<del></del>	
			•

5. Were all calculations checked at a minimum frequency? 6. Were units checked?	
Comments on any "No" response:	
	<del></del>
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a a ba	= 3/12/6

### Clouseau Nonconformance Memo



NCM #: J07486

NCM Initiated By: Pam Anderson

Date Opened: 03/13/03

Date Closed: N/A

Classification: Anomaly

Status: PMREVIEW

Production Area: Environmental - Sep

Tests: Pulso by ALP

Lot #'s (Sample #'s): J3A220291 (1,2); J3C030000 (564)

QC Batch: 3062564

Nonconformance: Tracer yield out of limits

Subcategory: Unknown

#### Problem Description / Root Cause

<u>Name</u>

<u>Date</u>

<u>Description</u>

03/13/03 These batches were run only to get yields for Pu 241 results. The first batch,

3051471, had a sample yield failure. The second batch has high blank yields. We will

use the recoveries of the second batch to calculated Pu 241 yields.

#### **Corrective Action**

<u>Name</u>

Date

**Corrective Action** 

Pam Anderson

Pam Anderson

03/13/03

Note in case narrative.

#### Approval History

<u>Name</u>

Date Approved:

**Position** 

Pam Anderson

03/13/03

Group Leader

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### Data Review Checklist RADIOCHEMISTRY First Level Paview

First Level Review	₹Y		
10 000000			7
Lot Number: 03/+00009/			<u> </u>
Client ID: Of the Control of the Con			
Due Date: 9/2/03			
OC Batch Number: 3074344			•
Method Test Parameter: SK4 F80	<del></del>		
Matrix: Scy 7			<del></del>
			<del></del>
SDG Number: wo3954		<del></del>	<del></del>
Review Item	Yes (√)	No (V)	N/A (V)
A. COC	103(4)	110(4)	17/1/
1. Is the ICOC page complete (includes all applicable analysts, dates,			.
SOP numbers and revisions)?	<del> </del>	<del></del>	<del></del>
B. QC Batch		1	<b>\</b>
1. Do the Summary/Detailed Reports include a calculated result for		·	į,
each sample listed on the QC Batch Sheet?	<del> </del>	<del></del>	
2. Are the QC appropriate for the analysis included in the batch?	<del></del>	<del> </del>	<del></del>
3. Is the Analytical Batch Worksheets complete (includes, as		1	
appropriate, volumes, count times, etc.)?	<del></del>	<del></del>	+
4. Does the Worksheets include a Tracer Vial label for each sample?	<del>                                     </del>	<del> </del>	<del></del>
C. QC & Samples		1	)
Is the blank result, yield and MDA within contract limits?	<del> </del>	<del> </del>	<del> </del>
. Is the LCS result, yield and MDA within contract limits?	<del></del>	<u> </u>	<del></del>
Are the MS/MSD results, yields and MDAs within contract limits?	<del> </del>	ļ	<del></del>
Are the duplicate results, yields and MDAs within contract limits?		ļ	
. Are the sample yields and MDAs within contract limits?		ļ	
). Raw Data	1	1	
. Were results calculated in the correct units?	1	<del> </del>	<del>-}</del>
. Were analysis volumes entered correctly?		ļ	<del></del>
. Were yields entered correctly?	ļ <u>-</u> -	ļ	<del>                                     </del>
. Were spectra reviewed/meet contractual requirements?			<del> </del>
. Were raw counts reviewed for anomalies?		Ļ	<del> </del>
. Other			1
Are all Nonconformances included and noted?			
Are all Nonconformances included and noted?			
. Are all required forms filled out?		}	<del></del>
Are all required forms filled out?  Was the correct methodology used?			
Are all required forms filled out?  Was the correct methodology used?  Was transcription checked?			
Are all required forms filled out?  Was the correct methodology used?	1		

41



Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis	<del></del>		
. Are the sample yields within acceptance criteria?			
. Is the sample Minimum Detectable Activity < the Contract		•	1
Detection Limit?			1
. Are the correct isotopes reported?			
B. QC Samples		<u> </u>	
1. Is the Minimum Detectable Activity for the blank result ≤ the	<b>/</b>		
Contract Detection Limit?		<u></u>	<u> </u>
2. Does the blank result meet the Contract criteria?			
Is the blank result < the Contract Detection Limit?	/		
4. Is the blank result > the Contract Detection Limit but the sample			
esult < the Contract Detection Limit?			
. Is the LCS recovery with contract acceptance criteria?			<u> </u>
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection			1
_imit?			
. Do the MS/MSD results and yields meet acceptance criteria?			/_
. Do the duplicate sample results and yields meet acceptance			1
riteria?		Ļ	<u> </u>
C. Other	1		
. Are all Nonconformances included and noted?	ļ	<u> </u>	
Are all required forms filled out?			
. Was the correct methodology used?	ļ <u>/</u>		
. Was transcription checked?	1	ļ	
. Were all calculations checked at a minimum frequency?	<del>                                     </del>	ļ	ļ.,-
Were units checked?		<u>l</u>	<u> </u>



LS-038A, Rev. 9, 8/02

### Data Review Checklist RADIOCHEMISTRY First Level Review

OC Batch Number: 3051473			
Method Test Parameter: N59 LEPO	<u>.                                    </u>		
Matrix: Sock			
SDG Number: wo 3954			
Review Item	Yes (√)	No (√)	N/A (√)
A. COC			
1. Is the ICOC page complete (includes all applicable analysts, dates,			
SOP numbers and revisions)?		J.,	
B. QC Batch			
1. Do the Summary/Detailed Reports include a calculated result for			
each sample listed on the QC Batch Sheet?		<u> </u>	
2. Are the QC appropriate for the analysis included in the batch?			
3. Is the Analytical Batch Worksheets complete (includes, as			
appropriate, volumes, count times, etc.)?			
4. Does the Worksheets include a Tracer Vial label for each sample?			
C. QC & Samples			ļ
1. Is the blank result, yield and MDA within contract limits?			<u> </u>
2. Is the LCS result, yield and MDA within contract limits?			
. Are the MS/MSD results, yields and MDAs within contract limits?			1
. Are the duplicate results, yields and MDAs within contract limits?	V	<u></u>	,
5. Are the sample yields and MDAs within contract limits?			
D. Raw Data			
. Were results calculated in the correct units?			
. Were analysis volumes entered correctly?	V	·	
. Were yields entered correctly?			
. Were spectra reviewed/meet contractual requirements?			
. Were raw counts reviewed for anomalies?			
E. Other			
. Are all Nonconformances included and noted?			
. Are all required forms filled out?			ļ
. Was the correct methodology used?			
. Was transcription checked?			<u> </u>
. Were all calculations checked at a minimum frequency?			
. Are worksheet entries complete and correct?			



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000 1 1 1	305/473	
OC Batch Number:	702 14 <del>1</del> 71	
<del></del>		•

Review Item	Yes (√)	No (V)	N/A (√)
A. Sample Analysis			
1. Are the sample yields within acceptance criteria?	<b>  ノ</b>	}	L
2. Is the sample Minimum Detectable Activity < the Contract			1
Detection Limit?		·	<u> </u>
3. Are the correct isotopes reported?			
B. QC Samples	7		T
1. Is the Minimum Detectable Activity for the blank result ≤ the			
Contract Detection Limit?	<u> </u>	<u> </u>	<u> </u>
2. Does the blank result meet the Contract criteria?			
3. Is the blank result < the Contract Detection Limit?			
4. Is the blank result > the Contract Detection Limit but the sample		Ţ .	1 1/
result < the Contract Detection Limit?	<u> </u>	·	
5. Is the LCS recovery with contract acceptance criteria?			<u> </u>
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection		T	1
Limit?			<u> </u>
B. Do the MS/MSD results and yields meet acceptance criteria?			
9. Do the duplicate sample results and yields meet acceptance		1	1
riteria?		<u> </u>	<u> </u>
C. Other		}	
. Are all Nonconformances included and noted?	.]	<u></u>	
. Are all required forms filled out?			
. Was the correct methodology used?		· .	
. Was transcription checked?		·	
. Were all calculations checked at a minimum frequency?			
. Were units checked?			1 1

o. were units checked?			<u> </u>	
Comments on any "No" respo	nse:			
			· · · · · · · · · · · · · · · · · · ·	
		:		
Second Level Review:	sumby		Date:3	14/03
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LS-038A, Rev. 9, 8/02

### Data-Review Checklist RADIOCHEMISTRY First Level Review

Client ID: BHI Due Date: 2-12-03			
Due Date: スーピーのろ		. <del></del>	
OC Batch Number: 3024348	·		
Method Test Parameter: Gamma			
Matrix: Soil			
SDG Number: wo 39 54			<u> </u>
Review Item	Yes (√)	No (√)	N/A (√)
A. COC			
1. Is the ICOC page complete (includes all applicable analysts, dates,	1		
SOP numbers and revisions)?			<u> </u>
B. QC Batch		1	
1. Do the Summary/Detailed Reports include a calculated result for		1	
each sample listed on the QC Batch Sheet?		<u> </u>	
2. Are the QC appropriate for the analysis included in the batch?	~		,
3. Is the Analytical Batch Worksheets complete (includes, as			
appropriate, volumes, count times, etc.)?			
Does the Worksheets include a Tracer Vial label for each sample?			
C. QC & Samples			
1. Is the blank result, yield and MDA within contract limits?			<u> </u>
2. Is the LCS result, yield and MDA within contract limits?	-		1
. Are the MS/MSD results, yields and MDAs within contract limits?	1		
. Are the duplicate results, yields and MDAs within contract limits?			
. Are the sample yields and MDAs within contract limits?			<u> </u>
). Raw Data	T		
. Were results calculated in the correct units?		1	1
. Were analysis volumes entered correctly?			<del> </del>
. Were yields entered correctly?			
. Were spectra reviewed/meet contractual requirements?		<del></del>	<del></del>
. Were raw counts reviewed for anomalies?			<del>                                     </del>
E. Other			<del>                                     </del>
. Are all Nonconformances included and noted? 507240			1
Are all required forms filled out?		·····	<u> </u>
. Was the correct methodology used?			<del> </del>
. Was transcription checked?		<del></del>	<del>}</del>
. Were all calculations checked at a minimum frequency?			<del>                                     </del>
Are worksheet entries complete and correct?			<del></del>

45



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		-	~ 11 7	7157	
OC Batch Number:		~~~	243	~ L 0	;
OC DUCOLL LANDON.			<del></del>		

Review Item	Yes (√)	No (V)	N/A (V)
A. Sample Analysis			
1. Are the sample yields within acceptance criteria?			
2. Is the sample Minimum Detectable Activity < the Contract			
Detection Limit?			<u> </u>
3. Are the correct isotopes reported?		<u> </u>	
B. QC Samples		}	
1. Is the Minimum Detectable Activity for the blank result ≤ the			!
Contract Detection Limit?		<u> </u>	<u> </u>
2. Does the blank result meet the Contract criteria?		<u> </u>	<u> </u>
3. Is the blank result < the Contract Detection Limit?	<u> </u>	<u> </u>	<u> </u>
4. Is the blank result > the Contract Detection Limit but the sample	1	,	1
result < the Contract Detection Limit?			
5. Is the LCS recovery with contract acceptance criteria?		<u> </u>	
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection		1 .	1
Limit?		<u></u>	<u> </u>
8. Do the MS/MSD results and yields meet acceptance criteria?			
9. Do the duplicate sample results and yields meet acceptance	7		} ."
criteria?		<u> </u>	
C. Other		. •	1
Are all Nonconformances included and noted?			
2. Are all required forms filled out?			
3. Was the correct methodology used?	)		
4. Was transcription checked?			
5. Were all calculations checked at a minimum frequency?			

Second Level Review: 31. 10 Date: 2/5/63

### Clouseau Nonconformance Memo



NCM #: <u>J07240</u>

NCM Initiated By: Dale OConnell

Date Opened: 02/05/03

Date Closed: N/A

Classification: Anomaly

Status: PMREVIEW

Production Area: Counting

Tests: Gamma by GER

Lot #'s (Sample #'s): J3A220291 (1,2); J3A240000 (348)

QC Batch: 3024348

Nonconformance: Batch Result Out of Limits

Subcategory: LCS result outside acceptance limits

#### Problem Description / Root Cause

<u>Name</u>

Date

**Description** 

Dale OConnell 02

02/05/03 CI

Client requested U-238DHP at lower abundance, therefore erratic recoveries and

higher MDA.

Insufficient sample to generate a duplicate.

#### **Corrective Action**

<u>Name</u>

**Date** 

**Corrective Action** 

Dale OConnell

02/05/03

Report results with recoveries achieved.

Precision determination achieved by recounting sample on a different detector.

Report results.

#### Approval History

<u>Name</u>

Date Approved:

**Position** 

**Dale OConnell** 

02/05/03

Group Leader

Date Printed: 02/05/03

Page 1 of 1 47





### Data Review Checklist RADIOCHEMISTRY First Level Review

Client ID: 3# I  Due Date: 2/12/2003			
INCOME November 5470 / 1/ 54/ a		<del></del>	<del></del>
OC Batch Number: 302 43 46	T		
	YTIUN	<u></u>	<del></del>
Matrix: SO/L	<del></del>		
SDG Number: W63954	1		
Review Item	Yes (V)	No (√)	N/A (√)
A. COC	1 23 ( 7 /	110(1)	1021(1)
1. Is the ICOC page complete (includes all applicable analysts, dates,		ŀ	
SOP numbers and revisions)?			}
B. QC Batch	<del>  • • • • • • • • • • • • • • • • • • •</del>	<del> </del>	- <del> </del>
·			
1. Do the Summary/Detailed Reports include a calculated result for			
each sample listed on the QC Batch Sheet?	<del>                                     </del>	<del>}</del>	<del>- </del> -
2. Are the QC appropriate for the analysis included in the batch?		<del></del>	<del> </del>
3. Is the Analytical Batch Worksheets complete (includes, as		1	
appropriate, volumes, count times, etc.)?	<del></del>	<del> </del>	<del> </del>
Does the Worksheets include a Tracer Vial label for each sample?			
C. QC & Samples	· .	}	}
. Is the blank result, yield and MDA within contract limits?		<u> </u>	ļ <del>-</del>
. Is the LCS result, yield and MDA within contract limits?		<u> </u>	<del> </del>
. Are the MS/MSD results, yields and MDAs within contract limits?		<u> </u>	
. Are the duplicate results, yields and MDAs within contract limits?			<u> </u>
. Are the sample yields and MDAs within contract limits?			
D. Raw Data			·
. Were results calculated in the correct units?			<u>i                                     </u>
. Were analysis volumes entered correctly?	_/		·
. Were yields entered correctly?			
. Were spectra reviewed/meet contractual requirements?			
. Were raw counts reviewed for anomalies?	1		
. Other		]	
. Other			· · · · · ·
. Other Are all Nonconformances included and noted?			1.
. Other  Are all Nonconformances included and noted?  Are all required forms filled out?			<del></del>
. Other . Are all Nonconformances included and noted? . Are all required forms filled out? . Was the correct methodology used?	<u> </u>		
. Other . Are all Nonconformances included and noted? . Are all required forms filled out?			

First Level Review: \_ LS-038A, Rev. 9, 8/02 Date: 2-4-03

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000	30243	161	
OC Batch Number:	20270	46	

A. Sample Analysis  1. Are the sample yields within acceptance criteria?  2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?  3. Are the correct isotopes reported?  B. QC Samples  1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?	(es (√)		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?  3. Are the correct isotopes reported?  B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?	<i>S</i>		
Detection Limit?  3. Are the correct isotopes reported?  B. QC Samples  1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?	<i>S</i>		
3. Are the correct isotopes reported?  B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?	<i>S</i>		
B. QC Samples  1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?	1		J
<ol> <li>Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?</li> <li>Does the blank result meet the Contract criteria?</li> <li>Is the blank result &lt; the Contract Detection Limit?</li> <li>Is the blank result &gt; the Contract Detection Limit but the sample result &lt; the Contract Detection Limit?</li> <li>Is the LCS recovery with contract acceptance criteria?</li> </ol>	1		J
Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?	1		J
2. Does the blank result meet the Contract criteria? 3. Is the blank result < the Contract Detection Limit? 4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit? 5. Is the LCS recovery with contract acceptance criteria?	1		J
3. Is the blank result < the Contract Detection Limit? 4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit? 5. Is the LCS recovery with contract acceptance criteria?			J
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?			J
result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?			J
result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection	/		
	/		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection		<u> </u>	1
	/		Ţ
Limit?			
8. Do the MS/MSD results and yields meet acceptance criteria?			
9. Do the duplicate sample results and yields meet acceptance			
criteria?			
C. Other			
I. Are all Nonconformances included and noted?			1_/
2. Are all required forms filled out?	~		
3. Was the correct methodology used?	U		l
4. Was transcription checked?			
. Were all calculations checked at a minimum frequency?			
5. Were units checked?			•
Comments on any "No" response:			

Second Level Review:	Beller	Whiteyn	<u>~</u>	Date: 2/6/	<u>′23_</u>
Comments on any "No" i	response:			·	·
5. Were units checked?					
S. Were all calculations chec		equency?			
<ol> <li>Was transcription checked</li> </ol>	1?"			j	· · · · · · · · · · · · · · · · · · ·



First Level Review:

LS-038A, Rev. 9, 8/02

### Data Review Checklist **RADIOCHEMISTRY** First Level Review

Lot Number: J3A 220 29 / Client ID: B H I				
Due Date: 2112-12003		<del></del>		
OC Batch Number: 3024350	<del></del>	<del></del>	<del></del>	
		<del></del>	<del></del>	
			<del></del>	
Matrix: SOIC	<del></del>	<del> </del>		
SDG Number: 603954	<del></del>		<del></del>	
Review Item	Yes (√)	No (V)	N/A (√)	$\neg$
v. COC		1		
. Is the ICOC page complete (includes all applicable analysts, dates,	1		Ì	
OP numbers and revisions)?		1	.	
. QC Batch				7
Do the Summary/Detailed Reports include a calculated result for	_	l	Į.	1
ach sample listed on the QC Batch Sheet?		İ	ľ	
Are the QC appropriate for the analysis included in the batch?				7
Is the Analytical Batch Worksheets complete (includes, as			1	7
opropriate, volumes, count times, etc.)?	/	<b>.</b>	}	. }
Does the Worksheets include a Tracer Vial label for each sample?			/	7
. QC & Samples				7
Is the blank result, yield and MDA within contract limits?	<b>-</b> '.			1
Is the LCS result, yield and MDA within contract limits?	. /			7
Are the MS/MSD results, yields and MDAs within contract limits?				7
Are the duplicate results, yields and MDAs within contract limits?	/			7
Are the sample yields and MDAs within contract limits?	/			7
. Raw Data				7
Were results calculated in the correct units?	/		1	
Were analysis volumes entered correctly?			<u> </u>	7
Were yields entered correctly?		,	Ţ,	7
Were spectra reviewed/meet contractual requirements?				7
Were raw counts reviewed for anomalies?				]
Other				7
Are all Nonconformances included and noted?			/	1
Are all required forms filled out?			7	7
Was the correct methodology used?			1	7
Was transcription checked?	/		T	1
Were all calculations checked at a minimum frequency?				7
Are worksheet entries complete and correct?			T	7
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omments on any "No" response:				
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est Level Review: Jan Quodenam				



QC Batch Number:	3024320	4 T 3

Review Item	Yes (V)	No (V)	N/A (√)
A. Sample Analysis	Ţ.,		
1. Are the sample yields within acceptance criteria?		J	
2. Is the sample Minimum Detectable Activity < the Contract			
Detection Limit?		<u> </u>	
Are the correct isotopes reported?	1./_	<u> </u>	
B. QC Samples		}	}
1. Is the Minimum Detectable Activity for the blank result ≤ the		}	
Contract Detection Limit?		<u> </u>	
2. Does the blank result meet the Contract criteria?		<b></b>	<u> </u>
3. Is the blank result < the Contract Detection Limit?		<del> </del>	
4. Is the blank result > the Contract Detection Limit but the sample	}	1	
result < the Contract Detection Limit?	<b> </b>	<del> </del>	
5. Is the LCS recovery with contract acceptance criteria?		ļ	<del> </del>
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection	<b>/</b>		-
Limit?			<del> </del>
8. Do the MS/MSD results and yields meet acceptance criteria?			
9. Do the duplicate sample results and yields meet acceptance			l ·
criteria?			
C. Other		•	
Are all Nonconformances included and noted?	· .	<u> </u>	
2. Are all required forms filled out?		<del></del>	<u> </u>
3. Was the correct methodology used?			
. Was transcription checked?			<del></del>
. Were all calculations checked at a minimum frequency?	N		
. Were units checked?			
Comments on any "No" response:	~ <u>~.</u>		<del></del>

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Second Level Revi	ew:	73.1	inti	lyn				Date:	2/4/	63





### Data Review Checklist RADIOCHEMISTRY First Level Review

Client ID: BHT.  Due Date: 2/12/2003			
OC Batch Number: 302 4345			
Method Test Parameter: 54 NICKEL-63			
Matrix: 5012			
SDG Number: W63954			
SDO Number.	<del></del>	<del></del>	
Review Item	Yes (V)	No (V)	N/A (V)
A. COC			1
'. Is the ICOC page complete (includes all applicable analysts, dates,		1	. 1
SOP numbers and revisions)?			
B. QC Batch	1	<b>,</b>	-
. Do the Summary/Detailed Reports include a calculated result for	1 -	1	1
ach sample listed on the QC Batch Sheet?	1	L	
. Are the QC appropriate for the analysis included in the batch?	V		
. Is the Analytical Batch Worksheets complete (includes, as			
ppropriate, volumes, count times, etc.)?		ł·	
. Does the Worksheets include a Tracer Vial label for each sample?			
C. QC & Samples			
. Is the blank result, yield and MDA within contract limits?			1
Is the LCS result, yield and MDA within contract limits?	V		
. Are the MS/MSD results, yields and MDAs within contract limits?			<u> </u>
. Are the duplicate results, yields and MDAs within contract limits?			
. Are the sample yields and MDAs within contract limits?	-		
). Raw Data			7
. Were results calculated in the correct units?		1	1
. Were analysis volumes entered correctly?			
. Were yields entered correctly?			
. Were spectra reviewed/meet contractual requirements?	//		
. Were raw counts reviewed for anomalies?			
E. Other			
. Oulei			1
			-
. Are all Nonconformances included and noted?	1/		<del></del>
. Are all Nonconformances included and noted? . Are all required forms filled out?			1
. Are all Nonconformances included and noted? . Are all required forms filled out? . Was the correct methodology used?		_ <del></del>	
Are all Nonconformances included and noted?  Are all required forms filled out?	V		~

Date:

First Level Review:



Review Item	Yes (√).	No (V)	N/A (1)
A. Sample Analysis	100(1)	110(1)	1 - 11 - 1
1. Are the sample yields within acceptance criteria?			1
2. Is the sample Minimum Detectable Activity < the Contract	· <del> </del>		
Detection Limit?			· ]
3. Are the correct isotopes reported?		<u> </u>	·
B. QC Samples	1		
. Is the Minimum Detectable Activity for the blank result ≤ the			1
Contract Detection Limit?			j
2. Does the blank result meet the Contract criteria?	1		
. Is the blank result < the Contract Detection Limit?	/		
. Is the blank result > the Contract Detection Limit but the sample			
esult < the Contract Detection Limit?			
. Is the LCS recovery with contract acceptance criteria?	/		
. Is the LCS Minimum Detectable Activity ≤ the Contract Detection		·	·
imit?		ļ	
. Do the MS/MSD results and yields meet acceptance criteria?			
. Do the duplicate sample results and yields meet acceptance			
riteria?			
C. Other	ļ		
Are all Nonconformances included and noted?			
. Are all required forms filled out?			
. Was the correct methodology used?			
Was transcription checked?			<u> </u>
Were all calculations checked at a minimum frequency?	/		<del> </del>
Were units checked?			<u> </u>

Date: 2/20/03

Second Level Review:



Data Review Checkl			•	
RADIOCHEMISTR	Υ		_	
First Level Review			$\sim$	
Lot Number: (13/12/029)	_,		7	
Client ID: BHZ				
Due Date: 3/14/230 2/12/03				
OC Batch Number: 3 1/2 20/25				
Method Test Parameter: SPNuxy/		<del></del>	<del></del>	
Matrix: Soil			<del></del>	
SDG Number: W63454				
0.507.				
Review Item	Yes (√)	No (V)	N/A (√)	7
A. COC		T	T	٦
1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?				
B. QC Batch				7
1. Do the Summary/Detailed Reports include a calculated result for	ĺ			
each sample listed on the QC Batch Sheet?		<u> </u>		
2. Are the QC appropriate for the analysis included in the batch?				}
3. Is the Analytical Batch Worksheets complete (includes, as			T	7
appropriate, volumes, count times, etc.)?	/	t	<u>.</u>	
4. Does the Worksheets include a Tracer Vial label for each sample?				]
C. QC & Samples	PA 17.53		1	7
1. Is the blank result, yield and MDA within contract limits?	3		ĺ	1
2. Is the LCS result, yield and MDA within contract limits?			Ţ	1 .
3. Are the MS/MSD results, yields and MDAs within contract limits?			1/	1
4. Are the duplicate results, yields and MDAs within contract limits?	<u> </u>		Ţ <del>-</del>	1
5. Are the sample yields and MDAs within contract limits?			1 .	1
D. Raw Data				1
. Were results calculated in the correct units?				
2. Were analysis volumes entered correctly?				1
. Were yields entered correctly?				1
Were spectra reviewed/meet contractual requirements?				] -
. Were raw counts reviewed for anomalies?				] .
E. Other				
. Are all Nonconformances included and noted?				
. Are all required forms filled out?				ŧ
. Was the correct methodology used?	7			
. Was transcription checked?				
. Were all calculations checked at a minimum frequency?				
. Are worksheet entries complete and correct?				
Comments on any "No" response: Rlank yields	high:	Nem	no the	Puso
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Date: 3-17-0 >

LS-038A, Rev. 9, 8/02



Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis			
Are the sample yields within acceptance criteria?		Y	
2. Is the sample Minimum Detectable Activity < the Contract	<del> </del>		<del></del>
Detection Limit?	/		
3. Are the correct isotopes reported?			T
B. QC Samples			1
1. Is the Minimum Detectable Activity for the blank result ≤ the	/		
Contract Detection Limit?	1	1	
2. Does the blank result meet the Contract criteria?	- <del></del>		1
3. Is the blank result < the Contract Detection Limit?	7		
4. Is the blank result > the Contract Detection Limit but the sample			1/
result < the Contract Detection Limit?	<u> </u>		
5. Is the LCS recovery with contract acceptance criteria?	J_		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection			
imit?	V	<u> </u>	
. Do the MS/MSD results and yields meet acceptance criteria?			
. Do the duplicate sample results and yields meet acceptance			
riteria?			<u> </u>
C. Other			
. Are all Nonconformances included and noted?	<b>✓</b>		
. Are all required forms filled out?		<u> </u>	<u> </u>
. Was the correct methodology used?	U		
. Was transcription checked?	/		
. Were all calculations checked at a minimum frequency?	·V	<u></u>	<u> </u>
Were units checked?			

Second Level Review:



### Data Review Checklist RADIOCHEMISTRY First Level Review

Due Date: 2/10/2003			
OC Batch Number: 302 43 49			
Method Test Parameter: SG TRITIUM		_ <del></del>	·
Matrix: SOIL			<del></del>
SDG Number: 4003959			
	<del>,</del>	· - <del></del>	<del>,</del>
Review Item	Yes (√)	No (V)	N/A (1)
COC	1	1	
Is the ICOC page complete (includes all applicable analysts, dates,			. }
OP numbers and revisions)?			<del> </del>
. QC Batch		1	{
Do the Summary/Detailed Reports include a calculated result for			· .
ch sample listed on the QC Batch Sheet?  Are the QC appropriate for the analysis included in the batch?	· ·	<del> </del>	<del></del>
Is the Analytical Batch Worksheets complete (includes, as		<del></del>	<del></del>
opropriate, volumes, count times, etc.)?		Ţ	
Does the Worksheets include a Tracer Vial label for each sample?	<del></del>	<del> </del>	+-,
. QC & Samples		<del>                                     </del>	1
Is the blank result, yield and MDA within contract limits?			
Is the LCS result, yield and MDA within contract limits?		<del> </del>	<del> </del>
Are the MS/MSD results, yields and MDAs within contract limits?		1	
Are the duplicate results, yields and MDAs within contract limits?			
Are the sample yields and MDAs within contract limits?			
. Raw Data			
Were results calculated in the correct units?		<u> </u>	1
Were analysis volumes entered correctly?			
Were yields entered correctly?			
Were spectra reviewed/meet contractual requirements?		<u> </u>	
Were raw counts reviewed for anomalies?			<del> </del>
Other			
Are all Nonconformances included and noted?			ļ ´
Are all required forms filled out?	<del></del>	<del> </del>	<del>}</del>
Was the correct methodology used? Was transcription checked?		-	<del>                                     </del>
Were all calculations checked at a minimum frequency?		<del> </del>	
Are worksheet entries complete and correct?	<del></del>	<del></del>	<del> </del>
Art worksheet entires complete and correct:	<del></del>	<del></del>	<u> </u>
omments on any "No" response:			
omments on any "No" response:	····	<del></del>	
			<del></del>
<del></del>	<del></del>		

56

First Level Review:

\_ Date: <u>2-3-0 }</u>



	• •	
OC Batch Number:	302434	$\{O\}$
20 246011 (10011		

Review Item	Yes (√)	No (V)	N/A (√)
A. Sample Analysis			
I. Are the sample yields within acceptance criteria?	. I		
2. Is the sample Minimum Detectable Activity < the Contract			
Detection Limit?	V	<u> </u>	
3. Are the correct isotopes reported?			
B. QC Samples			
1. Is the Minimum Detectable Activity for the blank result ≤ the			
Contract Detection Limit?			.}
2. Does the blank result meet the Contract criteria?			
3. Is the blank result < the Contract Detection Limit?			
4. Is the blank result > the Contract Detection Limit but the sample			
result < the Contract Detection Limit?	1	<u> </u>	1
5. Is the LCS recovery with contract acceptance criteria?			
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection			
Limit?			
8. Do the MS/MSD results and yields meet acceptance criteria?			
9. Do the duplicate sample results and yields meet acceptance		,	
criteria?			
C. Other		•	
. Are all Nonconformances included and noted?			
. Are all required forms filled out?			
. Was the correct methodology used?	/		
. Was transcription checked?		_	
. Were all calculations checked at a minimum frequency?			
			•

. Were and checken:				$\overline{}$			
Comments on any "No" response:		•					<u> </u>
			•				•
		· <del></del>					
Second Level Review:	e m	bign	· ·		_ Date:	2/4/	03
		<b>V</b> .	•		,		

# SEVERN TRENT SERVICES

### Richland Laboratory Data Review Check List METALS

Work Order Number(s): WO 3954				· · · · · · · · · · · · · · · · · · ·
Lab Sample Numbers or SDG: FGHGQ, FGHGV Boten#	308	<u> 243</u>	38	
Method/Test/Parameter: Hexavalent Chromium RIC	Hux	, SC	<u> </u>	RLO
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 <sup>nd</sup> Level Review (✓)
A. Initial Calibration				
1. Performed at required frequency with required number of levels?		ļ		/_
2. Correlation coefficient within QC limits?	<u></u>	ļ <u>.</u>		
<ol> <li>Initial calibration verification (ICV) analyzed immediately after calibration and results within QC limits?</li> </ol>		<u> </u>		/
4. Initial calibration blank(ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?				
B. Continuing Calibration				
1. CCV analyzed at required frequency and all parameters within QC limits?	<b>/</b>			V
2. CCB analyzed at required frequency and all results ≤ reporting limit?		·		/
C. Sample Analysis				
Were any samples with concentrations above the linear range for any parameter diluted and reanalyzed?		\ /		/
2. Were all sample holding times met?				/
D. QC Samples  1. All results for the preparation blank below limits?				
2. MS or MS/MSD recoveries within QC limits and %RPD (for MSD) acceptable?		V		/
3. LCS percent recovery within QC limits and %RPD (for LCSD) acceptable?	V			/
4. Analytical spikes within QC limits where applicable?				/
5. ICP only: One serial dilution performed per SDG?				~
6. ICP only: CRDL standard (CRI or CRA) analyzed at required frequency?			/	/
7. ICP only: Interference check samples (ICSA, ICSAB) and HICAL analyzed at the required frequencies and within QC limits?				./

Review Item	Yes (✓)	No (✓)	N/A (*),	2 <sup>nd</sup> Level Review (✓)
E. Other				-
1. Are all nonconformances included and noted? \\ \mathcal{70.7332}				
2. Is the correct date and time of analysis shown?				V
3. Did the analyst sign and date the front page of the analytical run?				V
4. Correct methodology used?				/
5. Transcriptions checked?	V			~
6. Calculations checked at minimum frequency?	. 1			V
7. Units checked?				

Comments on any "No" response:
Passons MS was 618 Post Diaston Spike was 9690
- FD51 DIGSTON STIPE WWW.
· · · · · · · · · · · · · · · · · · ·
Analyst: Date: 2-7-03
Second-Level Review: Date: 2-1923

Form No. CG-191, Rev. 3, 12/01



	11	
OC Batch Number:	3024338	

1. Is the Minimum Detectable Activity for the blank result ≤ the  Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection  Limit?	ノ ソ ソ
1. Are the sample yields within acceptance criteria?  2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?  3. Are the correct isotopes reported?  B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	ノ ノ ノ
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?  3. Are the correct isotopes reported?  B. QC Samples  1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	\( \sigma \)
Detection Limit?  3. Are the correct isotopes reported?  B. QC Samples  1. Is the Minimum Detectable Activity for the blank result ≤ the  Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection  Limit?	\( \sigma \)
B. QC Samples  1. Is the Minimum Detectable Activity for the blank result ≤ the  Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection  Limit?	ン <u>ソ</u>
1. Is the Minimum Detectable Activity for the blank result ≤ the  Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection  Limit?	<u> </u>
Contract Detection Limit?  2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓ 
2. Does the blank result meet the Contract criteria?  3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	
3. Is the blank result < the Contract Detection Limit?  4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	
result < the Contract Detection Limit?  5. Is the LCS recovery with contract acceptance criteria?  7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	
5. Is the LCS recovery with contract acceptance criteria? 7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	,
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection  Limit?	<u> </u>
Limit?	AND
Limit?  8. Do the MS/MSD results and yields meet acceptance criteria?	
8 Do the MS/MSD results and yields meet accentance criteria?	<b>/</b>
8. Do the May Mad Testina and Tierds these acceptance effects:	
9. Do the duplicate sample results and yields meet acceptance	
criteria?	<del>-</del>
C. Other	
1. Are all Nonconformances included and noted?	
2. Are all required forms filled out?	
3. Was the correct methodology used?	
5. Were all calculations checked at a minimum frequency?	
	•
2. Are all required forms filled out? 3. Was the correct methodology used? 4. Was transcription checked? 5. Were all calculations checked at a minimum frequency? 6. Were units checked?  Comments on any "No" response:	

### Clouseau **Nonconformance Memo**



NCM #: J07332

NCM Initiated By: Dale OConnell

Date Opened: 02/19/03

Date Closed: N/A

Classification: Anomaly

Status: PMREVIEW

Production Area: Classical Chemistry

Tests: 7196A

Lot #'s (Sample #'s): J3A220291 (1,2)

QC Batch: 3024338

Nonconformance: Batch Result Out of Limits

Subcategory: MS/MSD result outside acceptance limits

#### Problem Description / Root Cause

Name

Date

**Description** 

Dale OConneil

02/19/03 Cause: Matrix effect.

#### Corrective Action

<u>Name</u>

**Date Corrective Action** 

Dale OConnell

02/19/03 Post-digestion spike within limits, report results

#### Approval History

<u>Name</u>

**Date Approved:** 

**Position** 

Dale OConnell

02/19/03

**Group Leader** 

61

### CHAIN OF CUSTODY

Bechtel Han	ord Inc.		CHA	IN OF CUST	ODY/S	AMI	LE	ANALY	/SIS	RE	QUEST	· [	ВО	2-030-038	Page 1	of 1
Collector Stankovich Mitch	hell		npany ( likki Th	Contact oren/Mike Stankov	Telepho 521-8		-				iect Coordin	ator	Price Code	8L	L Data Tur	
Project Designation 105-F Rx Phase IV Soils (		San der & ad t		Location hallow Zone		, <u>, , , , , , , , , , , , , , , , , , </u>			_		F No. 2-030	1	Air Qualit	у 🗆	21 ]	Days
Ice Chest No.	- 97.079	Fiel	<del></del>	ook No.		COA R105	K FX20	C THIM	-07	Met	hod of Ships	hipment PEE 1-72-03  Coresso Government Vehicle				
Shipped To Severn Trent Incorporated		Ou	site Pro	perty No.	NA	-		· · · · · ·		Bill	l of Lading//	Air Bill N	D	/ <del>/)</del> -		
POSSIBLE SAMPLE HA			_1_		<u> </u>	1				1			_ <del></del>			<u> </u>
Radioactive	5 - 10 <i>5</i>			Preservation	None	Coo	14C	None	Cool	4C/			Ì			
	Tie To BIZIR5 Special Handling and/or Storage			ype of Container	G/P	(	3	G	a G	1						
Special Halloung and/o	_		No	o. of Container(s)	1			1	1							
·	Cool 4°C			Volume	1000g	12	5g	500g	/50	8			1			<u> </u>
SDG W03954	SAMPLE ANAL	.vsis Du	e)	2-12	See item (1) in Special Instructions.	Chron Hex -		See item (2) in Special Instructions.	ICB.	8082						
W03954	UZP	GOGG	91					K/	<							
Sample No.	Matrix *	Sample Da	ite	Sample Time				400			F1 346-6				September 1	
JOOFB7 FULL Q	SOIL	01-21-	03	0825	V		_	4	4							
						<u>.                                    </u>		/						_	<u> </u>	ļ
				<u> </u>	<u> </u>		•	/			<u> </u>					
<u> </u>				<u> </u>	<u> </u>	↓_		/						<u> </u>		<b>!</b>
	<u>-  </u>			<u> </u>	<u> </u>	ــــــــــــــــــــــــــــــــــــــ		/	<u> </u>		<u> </u>				<u> </u>	
CHAIN OF POSSES			rint Na		te/Time		SPEC	IAL INSTR	UCTIO	ONS						Matrix *
Retinquished By/Removed From	Stankovich 1213		370		-	<i>30</i> _								ium-152, Europ on-14; Nickel-5		S=Soil SE=Sediment SO=Solid
Relinquished By/Removed From 3 B 3728	Date/Time	Received By		Refable	te/Time 19		Isotop {Uran	ic Plutonium; ium-234, Urar	Plutoniu ium-233	m-24! 6, Urai	l; Strontium-9, nium-238}	90 Total	Sr; Uranium -	Isotopic (Comp	let)	SI=Shirdge W = Water O=Oil
Relinquished By/Removed From RF-001 Pf-1142	FIPC Date/Time	Received By/	Stored II	50 4100 Photo	te/Time (5	115	(2) M	iercury - 7471	- (CV); l	ICP M	(ctals - 6010A	(Add-on) (L	.ead); ICP Me	tals - 6010A (T	AL) (Barium)	A=Air DS=Drum Solids DL=Drum Liquids
Relinquished By/Removed From		Received By		Rhineheas	te/Time	43		rsonnel not								T=Tissae W!=Wipe L=Liquid
Relinquished By/Removed From	Date/Time	Received By	Stored In	n Di	nte/Time		R	linquish san ef# 3 V S	on <u>I</u>	12	4030	,			-	V=Vegetation X=Other
Relinquished By/Removed From	Date/Time	Received By	Stored I	n De	ate/Time						•					
LABORATORY Receive	d By			<del></del>	T	itle			<u> </u>						Date/Time	1
	d Method		<del></del> *	<del></del>	<del></del>			Disne	sed By				<del></del> -		Date/Time	
DISPOSITION								-	<b>-</b>							

Bechtel Hanford Inc.	CI	IAIN OF CUST	ODY/S	AMPL	E ANALY	YSIS	REQUI	ST	B02	2-030-037	Page 1	of 1
Collector Stankovich / Mitchell		iny Contact ii Thoren/Mike Stankov	Telephor 521-80		- <del>-</del>		Project Co TRENT, SJ	ordinator	Price Code	8L	Data Tur	naround
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under &		Sampling Location SAF No. 105F -Overburden Zone B02-030							Air Quality [] 21			Days
Ice Chest No. ERC 97-079		Field Logbook No. COA F2 W Method R105FX200C 1.3.3					Method of Shinment Government Vehi Je					
Shinned To Severn Trent Incorporated, Richland	Offsite	Property No.	<del></del>	· <u> </u>			Bill of Lad					
POSSIBLE SAMPLE HAZARDS/REMARKS	•			1				·		<i>A</i>		
Radioactive		Preservation	None	Coal 4C	None i	Cool	*C/	- }		1	l	
Tie To BIZIRT Special Handling and/or Storage	Type of Container	G/P	G	G	sG							
C0 0 / 4°C		No. of Container(s)	1	1	1	[ <i>[</i>		1				
C8814 —		Volume	1000g	125g	500g	250	6					
SAMPLE ANALYSI	S	<del></del>	See item (1) in Special Tastructions.	Chromius Hex - 715		Control of the state of the sta	8082					
Sample No. Matrix *	Sample Date	Sample Time										
JOOFBE FLHGV SOIL	1-21-3	0830	-	-	14							
<u> </u>											<u> </u>	
	<u> </u>		<u> </u>							<u> </u>		
			<u> </u>	<u> </u>	//					<del> </del> -	<u> </u>	
			<u></u>	<u> </u>		L		<u>l</u>		<u> </u>	<u> </u>	
CHAIN OF POSSESSION  Refinorished By/Removed From Date/Time / 920	Sign/Print Received By/Stor		ate/Time	SP	PECIAL INSTR	UCTIO	ONS					Matrix *
Refinquished By Removed From Date/Time 1938	3 <b>4</b> 37	28 121.5							Cobalt-60, Europiu itium - H3; Carbor			S=Soil SE=Sodiment
Relinquished By/Removed From Date/Time 3 13 3 72 8 1 2 2 0 3 1500  Relinquished By/Removed From Elle Date/Time	Received By/Stor	red in Di	ate/Time /20 2-1-2- ate/Time /5	203 (L) 203 (2)	otopic Plutonium; Uranium-234, Uran !) Mercury - 7471	Plutonius ium-235 - (CV); I	m-241; Stronti , Uranium-238 CP Metals - 60	ım- <b>8</b> ,90 To }	tal Sr; Uranium - Is  {Lead}; ICP Metr	sotopic (Comple	et)	SO-Solid SI-Studge W = Water O-Oil A-Air
Kotelly R. Febiler 1. 22.00 1515	Received By/Sto	A. Rhinehe	ete/Time	-03	Personnel not relinquish san Ref # 313							DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid
Relinquished By/Removed From Date/Time	Received By/Sto	red In D	ate/Time									V=Vegetation X=Other
Relinquished By/Removed From Date/Time	Received By/Sto	red In D	ate/Time									
LABORATORY Received By SECTION		<del> ,</del>	Ti	itle						j	Date/Time	<b>L</b>
FINAL SAMPLE Disposal Method DISPOSITION	<del></del> -				Dispo	sed By		- <del></del>			Date/Time	

36-inch

ERC Radiological Counting Facility Analysis Report

RCF Number RCF9298

Sample Date & Time

5/16/01

1245

Project ID: 100-F-19

**SAF Number:** <u>B00-029</u>

Datc Analyzed 5/18/01 10:41:

Sample ID: B121R5

Gamma	Energy	Analysis
-------	--------	----------

Nuclide	A	ctivity (pCi/į	g)	Error (pCi/g)	MDC (pCi/g)
K-40		2.1E+01	+/-	2.5E+00	4.0E-01
Co-60		4.6E-02	+/-	1.5E-02	4.3E-02
Cs-137		5.4E-02	+/-	1.8E-02	2.6E-02
Eu-152		3.0E-01	+/-	6.2E-02	1.2E-01
Eu-154	<	1.3E-01			1.3E-01
Eu-155	<	1.4E-01			1.4E-01
Am-241	<	8.9E-02			8.9E-02

Total GEA (pCVg) 2.2E+01 2.6E+00

+/-

Activity (pCl/g) Gross Alpha\*\*

N/R

Error (pCl/g) N/R

(

N/R

Gross Beta

+/-

N/R

#### Definitions:

All errors reported at 2 standard deviations.

N/R = no result or analysis not requested. <MDA = Less than detection limit.

All GEA results reported as "<" list the Minimum Detectable Concentration (MDC) value for that radionuclide.

Rounding error may result in the reported total GEA activity differing from the sum of the > MDA GEA values in the second significant digit.

#### For soils and natural samples, the following applies:

The analysis of U-238 is based on the activity of Pa-234m.

The analysis of Np-237 is based on the activity of Pa-233.

U-238dau is the activity of Pb-214 and Bi-214, short lived daughter products of U-238. Equilibrium between parent and daughter products probably does not exist in disturbed materials.

Th-232dau is the activity of Ac-228, Pb-212, and Tl-208, short lived daughter products of Th-232. Equilibrium between parent and daughter products may not exist in disturbed materials.

Other samples, not containing natural materials, may have inapplicable results for the Th. U. transurances and daughter products. The results must then be halanced for the gross alpha analysis.

\*The gross alpha results are not corrected for mass absorbtion

# No peaks for this radionuclide were visible above background in the spectrum. The result was reported as less than MDC.

Report To Mike Stankovich

Fux 521-8001

Joan Kessner

372-9487



### Sample Check-in List

Date/1	Time Received:	22/03@15:15a	R			
Client	BHI	SDG #: W0.3	3954 NA[]	SAF #: {	3 <del>02-030_</del> na	[]
Work	Order Number:	3A220291	Chain of Custod	ly# <u>Bos</u>	7-030-037	)38
	ng Container ID:	RC-97079	Air Bill #	IA		
1.	Custody Seals on	shipping container intact	?	NA [	] Yes ( No [ ]	
2.	Custody Seals da	ed and signed?		ŅA [	] Yes [[ No [ ]	
3.	Chain of Custody	record present?			Yes [ No [ ]	
4.	Cooler temperatur	e: <u>40</u> NA[] 5.	Vermiculite/packi	ng materia	lls is NA[] Wet[]	Dry X
6.	Number of sample	es in shipping container:_	4			/ \
7.	Sample holding ti	mes exceeded?		NA	Yes [ ] No [ ]	
8.	Samples have:tapecustody seal	S		azard label		
9.	Samples are:in good conductionbroken	dition	ha	aking ive air bub or samples	bles requiring head space	)
10.	Sample pH taken?			NAK I	oH<2[] pH>2[]	
11.		Sample Collector Listed? n only. No corrective act			Yes No[]	
12.	Were any anomalie	es identified in sample rec	eipt?		Yes [] No [X	
13.	Description of ano	malies (include sample nu	mbers):		<u> </u>	<del></del> .
·					· · · · · · · · · · · · · · · · · · ·	<del></del>
Sample	Custodiak Miles	hand Richa	Date: We	<del>20</del> /03		
Clie	nt Sample ID	Analysis Requested	Condition	1	Comments/Action	1
Client Inf	ormed on	by	Person cor	ntacted		
	ction necessary; proc		<del></del>			
roject M	anager		Date		·	
5 022 0	/01 Pay 4					

2/1/03 12:35:23 PM			Sample Pre	paration/An	alvsis		Balance Id:1120373	2022
127642, BECHTEL HAN	IFORD, INC.	, 61 Pu	Am PrpRC5013/RC	5019, SepRC508	•	5039)		
Bechtel Hanford, Inc.	03 W03	95LI SX An	nericium-241 by Alp	oha Spec	•	•	Pipet #: <u><i>VA</i></u>	
Report Due: 02/12/20			IENT: HANFORD				DT/Tm Tech: NA	
	OIL	pCi/g	PM,	Quote: BG2, 27	038	Se	2 DT/Tm Tech: NA	
SEQ Batch, Test: 3024342,	6ISO 3024342, 6IS	SO					Prep Tech: ,WAGN	IERJ
Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date
1 FGHGQ-1-AG		2.05g,in	AMTC1510			-		
J3A220291-1-SAMP 			12/05/02 11/15/02 <sub>,</sub> r		200			
01/21/2003 08:25		AmtRec: LP,125P	#Containers: 2		- 1	Scr Rst:	Alpha: 5.31E+01 pCi/g	Beta: 2.02E+01 pCi/g
2 FGHGQ-1-AR-X		2.0g,in	AMTC1511					
J3A220291-1-DUP			12/05/02 11/15/02_r				~~~~	
01/21/2003 08:25		AmtRec: LP,125P	#Containers: 2			Scr Rst:	Alpha: 5.31E+01 pCi/g	Beta: 2.02E+01 pCi/g
3 FGHGV-1-AG		2.01g,in	AMTC1512					
J3A220291-2-SAMP			12/05/02 11/15/02 <sub>.</sub> r	***************************************				
01/21/2003 08:30		AmtRec: LP,125P	#Containers: 2			Scr Rst:	Alpha: 9.02E+01 pCi/g	Beta: 3.18E+01 pCi/g
4 FGLTF-1-AA-B	-	2.0g,in	AMTC1513					· · · · · · · · · · · · · · · · · · ·
J3A240000-343-BLK			12/05/02 11/15/02 <i>;</i>	T7			***************************************	
01/21/2003 08:25		AmtRec:	#Containers: 1		1	Scr Rst:	Alpha:	Beta:
5 FGLTF-1-AC-C		2.0g,in	AMSJ0168					, <del>w</del>
J3A240000-343-LCS	~~~~~~~~~~~		01/31/03 11/15/02 <sub>.</sub> r				***	
01/21/2003 08:25		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
6 FGLTF-1-AD-BX		1.99g,in	AMTC1514				·	
J3A240000-343-MBLK			12/05/02 11/15/02_r	***************************************		************************		
01/21/2003 08:25		AmtRec:	#Containers: 1			Scr Rst;	Alpha:	Beta:
7 FGLTF-1-AE-CM		2.01g,in	AMSJ0169				<del></del>	
J3A240000-343-MLCS	***************************************		01/31/03 11/15/02.r	***********************			***************************************	
01/21/2003 08:25	-	AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
					<u></u>			
	and the second s	Final Amt, di - Diluted Am c-Enrichment Cell, ct-Coc	•	Page 1				WO Cnt: 7

2/1/03	12:35:24	PM
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### Sample Preparation/Analysis

Balance Id:1120373922

6I PuAm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)

SX Americium-241 by Alpha Spec

PRIORITY DT/Tm Tech:

Pipet #: \_\_\_\_\_

Report Due: 02/12/2003

5I CLIENT: HANFORD

\_\_\_\_

Batch: 3024343 SEQ Batch, Test: None pCi/g

Sep2 DT/Tm Tech:

Prep Tech: ,WAGNERJ

Work Order, Lot, Total Sample DateTime Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector	Count On   Off	CR Analyst,
7	Antonia	riep Date	Lieh Dara	I ime win	10	(24hr) Circle	Init/Date

Comments: Samples were mostled. g. 2-3-03

Scarple 6.) FELTF-1.AD BX blew it's Scrtey membrane during the pressurrection of the microwan, Do. per instructed us to continue with it- 2 2-3-03 often soul used for samples FELTF-13x+CM\_ 22.3-03

All Clients	for Batch:										· · · · · · · · · · · · · · · · · · ·
127642,	BECHTEL HANFORD	INC.		Bechtel	Hanford, Inc.	•	BG2, 27038				
FGHGQ1AG-SA	MP Constituent Li	st:	<del></del>			····					
Am-241	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
FGLTF1AA-BI	ik:										
Am-241	RDL:1	pCi/g	LCL:	UCL:	RPD:	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
FGLTF1AC-LC	:8:										
Am-241	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
FGLTF1AD-ME	BLK:										
Am-241	RDL:1	pCi/g	LCL:	UCL:	RPD:	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
FGL <b>TF1AE-M</b> I	.cs:										
Am-241	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
FGHGQ1AG-SA	MP Calc Info:										
	Level (#s).: 2	Decay t	o SaDt: Y	Blk Subt.:	N Sci.Not	Y 01	DRs: B				
fg <b>ltf1a</b> a-bi											
	: Level (#s).: 2	Decay t	o SaDt: Y	Blk Subt.:	N Sci.Not	Y 01	DRs: B				
FGLTF1AC-LC											
	Level (#s).: 2	Decay t	o SaDt: Y	Blk Subt.:	N Sci.Not	Y O	DRs: B				
FGLTF1AD-ME											
ľ	Level (#s).: 2	Decay t	o SaDt: Y	Blk Subt.:	N Sci.Not	Y 01	DRs: B				
FGLTF1AE-MI		_									
Uncert	: Level (#s).: 2	Decay t	co SaDt: Y	Blk Subt.:	: N Sci.Not	.: ¥ 01	DRs: B				

STL Richland Richland Wa. Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2

r - Reference date, ec-Enrichment Cell, ct-Cocktailed Added

Page 2

WO Cnt: 7 Prep\_SamplePrep v4.6 2/11/03 5:05:36 PM

### ICOC Fraction Transfer/Status Report ByDate: 1/12/03, 2/12/03, Batch: '3024343', User: \*All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

2 Batch Worl	k Ord CurSta	tus A	ccepting		Comments
3024343					
1C	CalcC	BELSITOB	1/27/03 4:05:13	7 PM	
SC .		WagarR	IsBatched	1/24/03 11:45:35 AM	ICOC_RADCALC v4.5.3.2
iC .		BELSITOB	InPrep	1/27/03 4:05:17 PM	RICH-RC-5013 REVISION 4
iC .		BELSITOB	Prep1C	1/28/03 2:14:10 PM	RICH-RC-5013 REVISION 4
iC .		WAGNERJ	InPrep2	1/29/03 7:51:10 PM	RICH-RC-5019 REVISION 4
C		WAGNERJ	Prep2C	2/3/03 3:52:20 PM	RICH-RC-5019 REVISION 4
C		HAMMERL	InSep1	2/4/03 7:46:44 AM	RICH-RC-5080 REVISION 1
C		DOWNEYS	Sep2C	2/11/03 6:56:53 AM	RICH-RC-5003 REVISION 4
C		BlackCL	InCnt1	2/11/03 7:18:50 AM	RICH-RD-0008 REVISION 2
0		BlackCL	CalcC	2/11/03 1:14:11 PM	RICH-RD-0008 REVISION 2
C		BELSITOB	1/28/03 2:14:10	PM	
C		WAGNERJ	1/29/03 7:51:10	PM	
C		WAGNERJ	2/3/03 3:52:20 (	РМ	
C		HAMMERL	2/4/03 7:46:44	AM	
•		DOWNEYS	2/11/03 6:56:53	AM	
7		BlackCL	2/11/03 7:18:50	AM	
C		BlackCL	2/11/03 1:14:11	PM ·	

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

2/1/03 12:33:16 PM			Sample Pr	eparation/Ar	nalysis			Balance id:1120373	<u> </u>
127642, BECHTEL HA Bechtel Hanford, Inc.	NFORD, INC.		Am PrpRC5013/R0 rtonium-238,239/4		•	C5010(5	039)	Pipet #:	
Report Due: 02/12/2	003 WO3	3954 51 CL	IENT: HANFORD				<b>PRIO</b> 判	Tri Tech:	
Batch: 3024342	SOIL	pCl/g	PM,	Quote: BG2, 2	7038			D2 DT/Tm Tech:	
SEQ Batch, Test: 3024345 3024345 AFS4, 3024346	3, 6ISX 3024343, 6 CHTH, 3024348 A	iISX Ali Tests: 3024338 XXTA, 3024349 ATS6, 3024	3 DWEA 3024341 8 1350 5SS3	BOV, 3024342 6IS	O, 3024343(	6ISX, 302	4344 7SSR,	Prep Tech: ,WAGN	IERJ
Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Cour Time		Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date
1 FGHGQ-1-AF		2.05g,in	PUTC6814				<u> </u>		
J3A220291-1-SAMP		***************************************	12/20/02 11/22/02,r	******	$\mathcal{Z}_{\mathcal{C}}$	)0	*****		
01/21/2003 08:25		AmtRec: LP,125P	#Containers: 2	·			Scr Rst:	Alpha: 5.31E+01 pCi/g	Beta: 2.02E+01 pCi/g
2 FGHGQ-1-AQ-X		2.0g,in	PUTC6815						
J3A220291-1-DUP			12/20/02 11/22/02,r				*****	**************************************	
01/21/2003 08:25		AmtRec: LP,125P	#Containers: 2				Scr Rst:	Alpha: 5.31E+01 pCi/g	Beta: 2.02E+01 pCi/g
3 FGHGV-1-AF		2.01g,in	PUTC6816						
J3A220291-2-SAMP			12/20/02 11/22/02.c					***************************************	
01/21/2003 08:30		AmtRec: LP,125P	#Containers: 2				Scr Rst:	Alpha: 9.02E+01 pCi/g	Beta: 3.18E+01 pCi/g
4 FGLTC-1-AA-B		2.0g,in	PUTC6817	<del>.</del>					
J3A240000-342-BLK	***************************************		12/20/02 11/22/02_r						
01/21/2003 08:25		AmtRec:	#Containers: 1				Scr Rst:	Alpha:	Beta:
5 FGLTC-1-AC-C		2.0g,in	PUSK0517						
J3A240000-342-LCS			01/14/03 09/30/02 <sub>/</sub>					······	~~~~~
01/21/2003 08:25		AmtRec:	#Containers: 1				Scr Rst:	Alpha:	Beta:
6 FGLTC-1-AD-BX		1.99g,in	PUTC6818			<u>-</u>			
J3A240000-342-MBLK		***************************************	12/20/02 11/22/02_r	*************				***************************************	
01/21/2003 08:25		AmtRec:	#Containers: 1		[		Scr Rst:	Alpha:	Beta:
7 FGLTC-1-AE-CM		2.01g,in	PUSK0518						
J3A240000-342-MLCS			01/14/03 09/30/02 <sub>/</sub>				***************************************	······································	***************************************
01/21/2003 08:25		AmtRec:	#Containers: 1				Scr Rst:	Alpha:	Beta:
				<del></del> _		- <del>-</del> -			
I		- Final Amt, di - Diluted Am , ec-Enrichment Cell, ct-Coo		2 Page 1					WO Cnt: 7 Prep_SamplePrep v4.

2/1	/03	12	:33:	18	PM

### Sample Preparation/Analysis

Balance Id:1120373922

6I PuAm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)

SO Plutonium-238,239/40 by Alpha Spec

5I CLIENT: HANFORD

Pipet #:

PROMPTVm Tech:

Report Due: 02/12/2003

51 CLIENT: HANF

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Batch: 3024342

Prep Tech: ,WAGNERJ

Work Order, Lot,	Total	Initial Aliquot	QC Tracer	QC Vial 2	Count	Detector	Count On Off	CR Analyst,
Sample DateTime	Amt/Unit	Mmt/Unit	Prep Date	Prep Date	Time Min	ld:	(24hr) Circle	Init/Date

Comments: Samples were nuffled. 9-2-3-03

pCl/g

Sample 6.) FGLTC-1-AD BX blew it's sortey membrane cluring the pressuritation of the microwae, D.O. per instructed us to continue with it-& 2-3.03
Otherwasend used for samples FGLTC-BXJCM\_ & 2.3.03

All Clients	for Batch:										
127642,	BECHTEL HANFORD	, INC.		Bechtel	Hanford, Inc.	•	BG2, 27038				
FGHGQ1AF-SA	MP Constituent L	ist:									
PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						
FGLTC1AA-BL	Æ:										
PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:	UCL:	RPD:
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						
FGLTC1AC-LC	:8:										
PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
PGLTC1AD-ME	LK:				-						
PU-238	RDL:1	pC1/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:	UCL:	RPD:
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						
FGLTC1AE-MI	æs:		•								
₽U-239	RDL:1	pCi/g	LCL:70	UCL: 130	RPD:35	Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
fghgolaf-sa	AMP Calc Info:										
Uncert	Level (#s).: 2	Decay t	o SaDt: Y	Blk Subt.:	N Sci.Not	t.: Y C	DR: B				
FGLTC1AA-BI	LX:	_									
Uncert	Level (#s) .: 2	Decay t	o SaDt: Y	Blk Subt .:	N Sci.No	t.: Y	DRs: B				
FGLTC1AC-LO	28:	_									
Uncert	Level (#s) .: 2	Decay t	o SaDt: Y	Blk Subt.:	N Sci.No	t.: Y (	DRs: B				
FGLTC1AD-M	BLK:	_								•	
Uncert	t Level (#s).: 2	Decay t	to SaDt: Y	Blk Subt.:	N Sci.No	t.: Y	DDRs: B				
FGLTC1AE-M	LCS:	-									·
Uncert	t Level (#s).: 2	Decay t	to SaDt: Y	Blk Subt.:	N Sci.No	F. • Y (	DRs: B				

STL Richland Richland Wa. Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2

r - Reference date, ec-Enrichment Cell, ct-Cocktailed Added

Page 2

WO Cnt: 7
Prep\_SamplePrep v4.6



## \*\*\* RE-ANALYSIS REQUEST \*\*\*

DUE DATE 23-63

CUSTOMER BHI	
ANALYSIS Pariso	
MATRIX Soil	
LOT NUMBER J3A 220	291
SAMPLE DELIVERY GROUP	wo3954
OLD BATCH NUMBER 30	51471
NEW BATCH NUMBER 3	062544
LAB SAMPLE ID	241 = 3067565 REASON FOR REQUEST & ANALYSIS COMMENTS
1) FG-HGQIAX	C SA yield fulls
2) FG HG QIAO	7
3) FG-HG-VIA4	
4)	
5) 6)	
7)	
8)	
9)	
10)	
11)	
12)	
13)	
14)	
15)	
15) 16) .7)	
8)	
.9)	
(0)	
LAB QC ID	Assigned with new batch.

3/5/03 5:25:11 PM			3922								
127642, BECHTEL H Bechtel Hanford, Inc.	IANFORD, INC.		n/241 PrpRC5013/5 utonium-238,239/4		5039)	וםם	ORITY	Pipet #:			
Report Due: 02/12/	/2003	51 CL	JENT: HANFORD		]		VIII: 5	Sep1 DT/Tm Tech:			
Batch: 3062564	SOIL	pCi/g PM, Quote: BG2, 27038						sep2 DT/Tm Tech:			
SEQ Batch, Test: 30514	72, AGSP 3051472,	AGSP 3062565, AGSP 30	062565, AGSP		Prep Tech: ,WAGNERJ						
Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Cour Time I	- 11	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date		
1 FGHGQ-2-AX		2.03g,in	PUTD1831								
J3A220291-1-SAMP			03/05/03 12/20/02 r		Zo	Ó					
01/21/2003 08:25		AmtRec: LP,125P	#Containers: 2		- 1		Scr Rs	: Alpha: 5.31E+01 pCi/g	Beta: 2.02E+01 pCi/g		
2 FGHGQ-2-A0-X		2.0g,in	PUTD1832								
J3A220291-1-DUP	**************************		03/05/03 12/20/02,r			* <b>*</b>		····			
01/21/2003 08:25		AmtRec: LP,125P	#Containers: 2				Scr Rs	t: Alpha: 5.31E+01 pCi/g	Beta: 2.02E+01 pCi/g		
3 FGHGV-2-AU		2.0g,in	PUTD1833	· · · · · · · · · · · · · · · · · · ·							
J3A220291-2-SAMP			03/05/03 12/20/02 r			**-*					
01/21/2003 08:30		AmtRec: LP,125P	#Containers: 2				Scr Rs	t: Alpha: 9.02E+01 pCi/g	Beta: 3.18E+01 pCi/g		
4 FJHN7-1-AA-B	•	2.0g,in	PUTD1834								
J3C030000-564-BLK	+		03/05/03 12/20/02_r			*****					
01/21/2003 08:25		AmtRec:	#Containers: 1				Scr Rs	t: Alpha:	Beta:		
5 FJHN7-1-AC-C		2.0g,in	PUSK0523								
J3C030000-564-LCS			01/31 <b>/</b> 03 09/30 <b>/</b> 02,r				***				
01/21/2003 08:25		AmtRec:	#Containers: 1	•			Scr Rs	t: Alpha:	Beta:		
6 FJHN7-1-AD-BX	-	1.98g,in	PUTD1835								
J3C030000-564-MBLK			03/05/03 12/20/02,r	*****************************							
01/21/2003 08:25		AmtRec:	#Containers: 1				Scr Rs	t: Alpha:	Beta:		
7 FJHN7-1-AE-CM		1.97g,in	PUSK0524					· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		
J3C030000-564-MLCS	-	***************************************	01/31/03 09/30/02,r		<u>-</u>			7 <b>755</b> 0000000000000000000000000000000000			
01/21/2003 08:25		AmtRec:	#Containers: 1	-			Scr Rs	t: Alpha:	Beta:		
					1	,					
STL Richland Ke		- Final Amt, di - Diluted Am ec-Enrichment Cell, ct-Coo	•	Page 1					WO Cnt: 7 Prep_SamplePrep v4.		

3/5/03	5:25:1	5 PM
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### Sample Preparation/Analysis

AG Pu/241 PrpRC5013/5019, SepRC5010(5039) SO Plutonium-238,239/40 by Alpha Spec

**5I CLIENT: HANFORD** 

PRIORITY

Balance le	d:1120373922
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Pipet #:

Report Due: 02/12/2003

)2/12/2003

pCi/g

Sep1 DT/Tm Tech:

SEQ Batch, Test: None

Batch: 3062564

Sep2 DT/Tm Tech:

Prep Tech: ,WAGNERJ

Work Order, Lot, Total Initial Aliquot QC Tracer QC Vial 2 Count On | Off CR Analyst, Count Detector Sample DateTime Amt/Unit Amt/Unit Prep Date Prep Date Time Min ld (24hr) Circle Init/Date

Comments: Somples were muffled . 2-6-03

	for Batch: BECHTEL HANFORD	TNO		P h + - 1	T		202 02020			
12/042,	BECRIEL HANFORD	, INC.		Becuter	Hanford, Inc.		, BG2, 27038			
FGHGQ2AX-SA	MP Constituent Li	st:		···						
PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:	UCL:
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35		•			
FJHN71AA-BL	K:							•		
PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:	UCL:
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35				*	
FJHN71AC~LC	s:						•			
PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	Pu-242	RDL:	pCi/g	LCL:20	UCL:105
FJHN71AD-MB	LK:									
PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:	UCL:
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35					
FJHN71AE-ML	CS:									
PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	Pu-242	RDL:	pCi/g	LCL:20	UCL:105
FGHGO2AX-SA	MP Calc Info:	•								
	Level (#s).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.	. v	ODRs: B			
FJHN71AA-BL	- · · · · · - · -			2-2 040211		• -	ODKI. B			
	Level (#s).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.	, v	ODRs: B			
FJHN71AC-LC				D-11 DEQ.11		• •	ODKO. D			
i	: Level (#s).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.		ODRs: B			
FJHN71AD-ME	· - · · · · · · · · · · · · · · · · · ·			24.0 24.02.17	- 50-18011		ODKE. D			
Uncert	Level (#s).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.	. v	ODRs: B			
FJHN71AE-MI	<del>-</del>	22003 00			DOLLANCE.	• •	VARA I B			
	Level (#s).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.	. v	ODRs: B			
1				Dube	SCLINGE.		ODES. D			

STL Richland Richland Wa. Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2

r - Reference date, ec-Enrichment Cell, ct-Cocktalled Added

Page 2

WO Cnt: 7

RPD:

RPD:

RPD:35

RPD:

RPD:35

2/5/03 10:57:24 AM Sample Preparation/Analysis Balance Id:1120373922 127642. BECHTEL HANFORD, INC. 7S Ulso PrpRC5013/RC5019, SepRC5079(5039) Pipet#: ルル Bechtel Hanford, Inc. PRIORIT DT/Tm Tech: NA SR Uranium-234,235,238 by Alpha Spec W 63954 51 CLIENT: HANFORD Report Due: 02/12/2003 Batch: 3024344 Sep2 DT/Tm Tech: NP SOIL pCl/g PM, Quote: BG2, 27038 SEQ Batch, Test: None Prep Tech: ,WAGNERJ Work Order, Lot. QC Tracer QC Vial 2 Total Initial Aliquot Count Detector Count On I Off CR Analyst, Sample DateTime Amt/Unit Amt/Unit Prep Date Prep Date Time Min (24hr) Circle Init/Date ld 1 FGHGQ-1-AC 1.04g,in **UITC8685** 200 12/20/02 J3A220291-1-SAMP 11/11/02 r 01/21/2003 08:25 AmtRec: LP.125P Alpha: 5.31E+01 pCi/g #Containers: 2 Scr Rst: Beta: 2,02E+01 pCi/g 2 FGHGQ-1-AT-X **UITC8686** 1.02g in 12/20/02 J3A220291-1-DUP 11/11/02.6 01/21/2003 08:25 AmtRec: LP.125P #Containers: 2 Scr Rst: Alpha: 5.31E+01 pCi/q Beta: 2.02E+01 pCi/g 3 FGHGV-1-AC **UITC8687** 1.01g,in 12/20/02 J3A220291-2-SAMP 11/11/02. 01/21/2003 08:30 AmtRec: LP.125P #Containers: 2 Scr Bst: Alpha: 9.02E+01 pCi/g Beta: 3.18E+01 pCi/g 4 FGLTK-1-AA-B 1.0g,in **UITC8688** 12/20/02 J3A240000-344-BLK 11/11/02. 01/21/2003 08:25 AmtRec: #Containers: 1 Scr Rst: Beta: Alpha: 5 FGLTK-1-AC-C 1.0g,in UISH0172 01/10/03 J3A240000-344-LCS 10/05/02.r Scr Rst: 01/21/2003 08:25 #Containers: 1 Alpha: Beta: Samples were muffled. 02-05-03 gets Samples were converted 3x w/ Con HCI. 02-05-03 gets Comments: All Clients for Batch: 127642, BECHTEL HANFORD, INC. , BG2, 27038 Bechtel Hanford, Inc. FGHGOlAC-SAMP Constituent List: **U-232** pCi/g LCL:20 UCL:105 RPD:35 U-234 RDL:1 pC1/q LCL DCL 2 RPD: STL Richland Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 WO Cnt: 5 Page 1 Prep SamplePrep v4.6 r - Reference date, ec-Enrichment Cell, ct-Cocktailed Added Richland Wa.

2/5/03 10:57:25 A	AΜ	5	2	7	٠5	O	1	03	/5/	2
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## Sample Preparation/Analysis

PRIORITS Sep1 DT/Tm Tech:

Balance	ld:1120373922
-414.144	14.1120010022

7S Ulso PrpRC5013/RC5019, SepRC5079(5039) SR Uranium-234,235,238 by Alpha Spec

**5I CLIENT: HANFORD** 

Pipet #: \_

Report Due: 02/12/2003

pCl/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Batch: 3024344

Prep Tech: ,WAGNERJ

Work Order Sample Date		Total	Initial Aliquo Amt/Unit		Tracer Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On (24hr) C		CR Analyst, Init/Date
υ-235	RDL:1	pCi/g	LCL:	UCL:	RPD:	U-238	RDL:1	pci/g	LCL:	UCL:	RPD:
GLTKLAA-BL	K:						•				
U-232	RDL:	pCi/g	LCL:20	UCL:105	RPD:35	U-234	RDL:1	pCi/g	LCL:	UCL:	RPD:
ช-235	RDL:1	pCi/g	LCL:	UCL:	RPD:	υ-23 <b>8</b>	RDL:1	pCi/g	LCL:	UCL:	RPD:
GLTK1AC-LC	S:										
U-232	RDL:	pCi/g	LCL:20	UCL:105	RPD:35	Uranium	RDL:	pCi/g	LCL:70	UCL:130	RPD:35
GHGO1AC-SA	MP Calc Info:										
Uncert	Level (#s) .: 2	Decay 1	o SaDt: Y	Blk Subt.:	N Sci.N	ot.: Y ODR	s: B				
GLTK1AA-BL											
Uncert	Level (#s) .: 2	Decay 1	to SaDt: Y	Blk Subt.:	N Sci.N	ot.: Y ODR	s: B				
GLTK1AC-LC	S:	<del>-</del>									
Uncert	Level (#s) .: 2	Decay 1	to SaDt: Y	Blk Bubt.:	N Sci.N	ot.: Y ODR	s: B				

2/12/03 8:30:38 AM

# ICOC Fraction Transfer/Status Report ByDate: 1/13/03, 2/13/03, Batch: '3024344', User: \*All Order by BatchNbr, WorkOrderNbr, DateTimeAccepting

Q Batch Wo	ork Ord CurStat	ius #	ccepting		Comments
3024344					
AC	CalcC	BELSITOB	1/27/03 4:05:22	2 PM	
SC		WagarR	IsBatched	1/24/03 11:45:35 AM	ICOC_RADCALC v4.5.3.2
SC		BELSITOB	InPrep	1/27/03 4:05:22 PM	RICH-RC-5013 REVISION 4
SC		BELSITOB	Prep1C	1/28/03 2:14:15 PM	RICH-RC-5013 REVISION 4
SC		WAGNERJ	InPrep2	1/29/03 7:51:22 PM	RICH-RC-5019 REVISION 4
SC		WAGNERJ	Prep2C	2/5/03 11:05:22 AM	RICH-RC-5019 REVISION 4
SC		HAMMERL	Sep1C	2/7/03 8:44:34 AM	RICH-RC-5079 REVISION 1
SC		DOWNEYS	Sep2C	2/10/03 11:35:12 AM	RICH-RC-5039 REVISION 3
SC		BlackCL	InCnt1	2/10/03 12:18:49 PM	RICH-RD-0008 REVISION 2
SC		BlackCL	CalcC	2/11/03 9:21:35 AM	RICH-RD-0008 REVISION 2
4C		BELSITOB	1/28/03 2:14:15	5 PM	
AC		WAGNERJ	1/29/03 7:51:22	2 PM	
AC		WAGNERJ	2/5/03 11:05:22	2 AM	
4C		HAMMERL	2/7/03 8:44:34	AM	
4 <i>C</i>		DOWNEYS	2/10/03 11:35:1	2 AM	
4 <i>C</i>		BlackCL	2/10/03 12:18:4	19 PM	
4 <i>C</i>		BlackCL	2/11/03 9:21:35	5 AM	

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

2/21/03 2:44:13 PI	М	<del></del>	Samı	ole Preparat	ion/Analy	rsis	<del></del> _	Bal	ance ld:112037392	22
127642, BECHTEL Bechtel Hanford, Inc			SA NI-59 PrpRC5 IE Nickel-59	013, SepRC506	9	nt	HORI		Pipet #:	<del></del>
Report Due: 02/1			51 CLIENT: HAN	FORD		Pr	P C B E S H	Sep1 DT/	fm Tech:	
Batch: 3051473	SOIL	pCi/g	PM, Quote: BG2, 27038 Sep2 DT/Tm Tech:							
SEQ Batch, Test: Nor	_	Drop Tooks WACNER								RJ
Work Order, Lot,	Friday Aliquet	-Initial Aliquot	QC Tracer	QC Vial 2	Dish	Ppt or	Count	Detector	Count On Off	CR Analyst,
Sample DateTime	2.24 SAmt/Unit (5)	4/2-PAmt/Unit (5)	Prep Date	Prep Date	Size	Geometry	Time Min	Id	(24hr) Circle	Init/Date
1 FGHGQ-1-AW J3A220291-1-SAMP	1,22	1.02g,in	NITA1405 02/07/03	-			108	L2	1653	2/28/200301
01/21/2003 08:25		AmtRec: LP,	25P #Conta	iners: 2			Sc	r Rst: Alpha	: 5.31E+01 pCi/g	Beta: 2.02E+01 pCi/g
2 FGHGV-1-AV J3A220291-2-SAMP	1.22	1.02g,in	NITA1406 02/07/03					<i>L</i> 3	1707 8	0 2/28/2002019
01/21/2003 08:30		AmtRec: LP,	25P #Conts	liners: 2			So	r Rst: Alpha	: 9.02E+01 pCi/g	Beta: 3.18E+01 pCi/g
3 FGHGV-1-AW-X J3A220291-2-DUP	1.20	1.0g,in	NITA1407 02/07/03					LZ	1842	2/28/200300
01/21/2003 08:30		AmtRec: LP,	125P #Conta	ainers: 2	•		So	er Rst: Alpha	: 9.02E+01 pCi/g	Beta: 3.18E+01 pCl/g
4 FH0WV-1-AA-B J3B200000-473-BLK	1.20	1.0g,in	NITA1408 02/07/03					<i>L</i> 3	237	10 2/28/20000
01/21/2003 08:30		AmtRec:	#Container	rs: 1			so	or Rst:	Alpha:	Beta:
5 FH0WV-1-AC-C J3B200000-473-LCS	1.20	1.0g,in	NISC0012 01/30/03					12	2317	
01/21/2003 08:30		AmtRec:	#Containe	rs: 1			s	or Rst;	Alpha:	Beta:
Comments:									<del></del>	
<u></u>	Satch: FEL HANFORD, INC. Key: In - Initial Armt, f			Hanford, Inc.	•	BG2, 27038				WO Cnt: 5
Richland Wa.	•	e, ec-Enrichment Cell,	•	Dag	e 1					Prep_SamplePrep v4.6

◁

2/21/03	2:44:14	РМ

### Sample Preparation/Analysis

Balance Id:1120373922

8A Ni-59 PrpRC5013, SepRC5069 ME Nickel-59

PRIORITY DT/Tm Tech:

Pipet #:

Report Due: 02/12/2003

**51 CLIENT: HANFORD** 

Batch: 3051473 SEQ Batch, Test: None

Sep2 DT/Tm Tech:

**Prep Tech: WAGNERJ** 

Work Order, Lot,	Total	Initial Aliquot	QC Tracer	QC Vial 2	Dish	Ppt or	Count	Detector	Count On I Off	CR Analyst,
Sample DateTime	Amt/Unit	Amt/Unit	Prep Date	Prep Date	Size	Geometry	Time Min	ld	(24hr) Circle	Init/Date

FGHGQlaw-Samp Constituent List:

Ni-59 RDL:30 HOWVIAA-BLK:

LCL:

UCL:

RPD:

Mi-59 RDL:30

LCL:

Decay to SaDt: Y

pCl/g

UCL: RPD:

PHOWVIAC-LCS:

FHOWV1AA-BLK:

Uncert Level (#s).: 2

FGHGQ1AW-SAMP Calc Info: Uncert Level (#s).: 2

Decay to SaDt: Y

pCi/g

pCi/g

Blk Subt .: N

Sci.Not.: Y

Blk Subt .: N

Sci.Not.: Y

ODRs: B

PHOWVLAC-LCS: Uncert Level (##) .: 2

Decay to SaDt: Y

Blk Subt.: N

Sci.Not.: Y

ODRs: B

ODRs: B

(

3/5/03 6:27:40 PM

# ICOC Fraction Transfer/Status Report ByDate: 2/3/03, 3/6/03, Batch: '3051473', User: \*All Order by BatchNbr, WorkOrderNbr, DateTimeAccepting

Q Batch Worl	COrd CurStat	tus A	ccepting		Comments
3051473					<u> </u>
4 <i>C</i>	CalcC	WAGNERJ	2/21/03 2:01:30	PM	
SC		WagarR	IsBatched	2/20/03 4:07:54 PM	ICOC_RADCALC v4.5.3.2
C .		WAGNERJ	InPrep2	2/21/03 2:01:30 PM	RICH-RC-5013 REVISION 4
iC		WAGNERJ	Prep2C	2/24/03 11:07:38 AM	RICH-RC-5013 REVISION 4
c		ManisD	InSep1	2/24/03 2:40:35 PM	RICH-RC-5069 REVISION 4
C		ManisD	Sep1C	2/28/03 2:41:03 PM	RICH-RC-5069 REVISION 4
C		DAWKINSO	InCnt1	2/28/03 3:09:38 PM	RICH-RD-0007 REVISION 3
c		BlackCL	CalcC	3/4/03 5:22:58 AM	RICH-RD-0007 REVISION 3
С		WAGNERJ	2/24/03 11:07:3	8 AM	
C		ManisD	2/24/03 2:40:35	РМ	
c		ManisD	2/28/03 2:41:03	РМ	
C		DAWKINSO	2/28/03 3:09:38	РМ	
С	•	BlackCL	3/4/03 5:22:58 /	M	

1/24/2003 11:45:49 /	AM		Sa	mple Prepara	tion/Analy	/sis		Bala	ance ld: f63	1001-5
127642, BECHTEL HA Bechtel Hanford, Inc.	ANFORD, INC.			rpRC5013/5017	•	PRIO			Pipet #:	
Report Due: 02/12/2	2003 ( ) (	)395H	51 CLIENT: 1	<b>IANFORD</b>		FRIU	A I IV	Sep1 DT/	rm Tech:	
Batch: 3024348	SOIL	pCi/g	·	PM, Quote	: BG2, 2703	8		Sep2 DT/	Tm Tech:	
SEQ Batch, Test: None		(0)						-	ep Tech: MS	
Work Order, Lot,	Total	(9)   Initial Aliquo	t   QC Trace	r QC Vial 2	Dish	Ppt or	Count	Detector	Count On Off	CR Analyst
Sample DateTime	Amt/Unit	Amt/Unit	Prep Date		Size	Geometry	Time Min	ld	(24hr) Circle	Init/Date
1 FGHGQ-1-AK								150	2/4	2/3/53
J3A220291-1-SAMP		385.4			*****	5200	600	68	0314	· / · / · / · / · / · / · / · / · / · /
01/21/2003 08:25			AmtRec: LP,125P	#Containers: 2		Ser Rst:	Alpha: 5.31	E+01 pCi/g	Beta: 2.02E+01 pC	CiVg
2 FGHGV-1-AK								, ,		1/3/53
J3A220291-2-SAMP	·**	362.7						Gle	1710	6
01/21/2003 08:30			AmtRec: LP,125P	#Containers: 2		Sor Rst:	Alpha: 9.02	E+01 pCi/g	Beta: 3.18E+01 pC	Ci/g
3 FGHGV-1-AP-X								, ,		
J3A220291-2-DUP		362.7						61	0317	
01/21/2003 08:30			AmtRec: LP,125P	#Containers: 2		Sc Rst:	Alpha: 9.02	E+01 pCi/g	Beta: 3.18E+01 p0	CVg
4 FGLT8-1-AA-BX				-				/ 0		
J3A240000-348-MBLK		348.0	OSBI	<u> </u>	5	200		62	0315	
0 <del>1/21/2023</del> 09:30 0 <del>1/21/2023</del> 09:30			AmtRec:	#Containers: 1		Scr Ast:	Alpi	ha:	Beta:	
5 FGLT8-1-AC-CM		_				$\frac{1}{2}$		11		4
J3A240000-348-MLCS		200.01	CALL	191		<u> </u>	4	م)ی	03/6	
1 1 <i> 03</i> <del>01/21/2003-98-70,</del>		•	AmtRec:	#Containers: 1		Scr Rst:	Alpi	ha:	Beta;	
Comments:	Recoun	t dup .	on differe	ent deteck	z. FG1	H6V-1-A	KN	3 1/2810	23	
All Clients for Bat 127642, BECHTEL		·•	Bechte	el Hanford, Inc.		BG2, 27038				
FGHGQ1AK-SAMP Const Co-60 RDL:5		i/g LCL:	UCL:	RPD:	Cs-137	RDL:1.00E-0	)1 pCi/g	LCL:	UCL:	RPD:
<u> </u>	-	i/g LCL:	UCL:	RPD:	Eu-152	RDL:1.00E-0			UCL:	RPD:
STL Richland Richland Wa.	•	mt, fi - Final Amt, ce date, ec-Enrichn	di - Diluted Amt, nent Cell, ct-Cocktai	led Added Pa	ge 1	· · · · · · · · · · · · · · · · · · ·				WO Cnt: 5

1/24/2003 11:45:49 AM	1/2	24/2	2003	11	:45.4	MA P
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Report Due: 02/12/2003

Batch: 3024348

SEQ Batch, Test: None

## Sample Preparation/Analysis

AX Gamma PrpRC5013/5017 **TA Gamma by HPGE** 

**5I CLIENT: HANFORD** 

**PRIORITY** 

Balance id:

Pipet #:

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

									Pre	p Tech:		
Work Orde Sample Dat		nit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date	_
Eu-154	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	Eu-155	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	_
FGLT81AA-MB	LK:											
Co-60	RDL:5.00E-02	pCi/g	LCL:	UCL:	RPD:	C=-137	RDL:1.00E-01	pCi/g	LCL:	707		
Cs-137DA	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	Eu-152	RDL:1.00E-01		LCL:	UCL:	RPD:	
Zu-154	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	Eu-155	RDL:1.00E-01		LCL:	UCL:	RPD: RPD:	
FGLT81AC-ML	CS:						-					
Cs-137	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35	Cs-137DA	RDL:0.1	pCi/g	7.07 . 7.0			
K-40	RDL:	pCi/g	LCL:70	UCL:130	RPD:35	Ra-226	RDL:0.1		LCL:70	UCL:130	RPD:35	
RA-228	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD:35	RA-228DA	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD: 35	
U-238	RDL:	pCi/g	LCL:70	UCL:130	RPD:35	701 220DA	KDD10.2	pCi/g	LCL:70	UCL:130	RPD:35	
FGHGQ1AK-SA	MP Calc Info:											
Uncert	Level (#s).: 2	Decay	to SaDt: Y	Blk Subt.:	N Sci.Not.	· Y ODB	: B			•		
FGLT81AA-MB	LK:	-				ODK	•• <i>B</i>					
Uncert	Level (#s).: 2	Decay	to SaDt: Y	Blk Subt.:	N Sci.Not.	. Y ODB	8: B			•		
FGLT81AC-ML	CS:		· · · · · · ·			- 2 ODR	5					
Uncert	Level (#s).: 2	Decay	to SaDt: Y	Blk Subt.:	N Sci.Not.	Y ODR	s: B					

pCi/g

2/5/03 5:16:21 PM

## ICOC Fraction Transfer/Status Report ByDate: 1/6/03, 2/6/03, Batch: '3024348', User: \*All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch Work O	rd CurSta	tus A	ccepting		Comments
3024348					
AC	CalcC	BELSITOB	1/27/03 4:04:46	S PM	
SC		WagarR	IsBatched	1/24/03 11:45:35 AM	ICOC_RADCALC v4.5.3.2
SC		BELSITOB	InPrep	1/27/03 4:04:46 PM	RICH-RC-5013 REVISION 4
SC		BELSITOB	InPrep	1/27/03 4:05:00 PM	RICH-RC-5017 REVISION 3
SC		BELSITOB	Prep1C	1/28/03 2:13:53 PM	RICH-RC-5013 REVISION 4
SC		BELSITOB	Prep1C	1/28/03 2:13:57 PM	RICH-RC-5017 REVISION 3
SC		DAWKINSO	InCnt1	1/28/03 2:45:55 PM	RICH-RD-0007 REVISION 3
SC		BlackCL	CalcC	2/4/03 10:03:52 AM	RICH-RD-0007 REVISION 3
AC		BELSITOB	1/27/03 4:05:00	) PM	
AC		BELSITOB	1/28/03 2:13:53	3 PM	
AC		BELSITOB	1/28/03 2:13:57	PM	
AC		DAWKINSO	1/28/03 2:45:55	5 PM	
AC		BlackCL	2/4/03 10:03:52	2 AM	

AC: Accepting Entry; SC: Status Change

STL Richland

1/29/03 4:49:04 PM			Sa	mple Prepara	tion/Analy	/sis	· · · <u></u> .		Balar	nce ld:1120373	922 /	#02	
127642, BECHTEL H. Bechtel Hanford, Inc.	ANFORD, INC.	•		rpRC5013, SepRC	5006	PP		ITY	F	Pipet #: <u>시사</u>			
Report Due: 02/12/	2003 WO3	754	51 CLIENT: H	_		# #1		Se <sub>i</sub>	p1 DT/Tm	n Tech: //3//	0.3	L:21	LW.
Batch: 3024346	SOIL	pCi/g		PM, Quote	: BG2, 2703	8		 Se <sub>l</sub>	p2 DT/Tm	n Tech: NA			
SEQ Batch, Test: None						( 4.)			Prep	Tech: ,WAGN	IERJ		
Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Trace Prep Date		Dish Size	Ppt or Geometry	Coun Time M	31	etector Id	Count On Of (24hr) Circle	f	CR Analys	
1 FGHGQ-1-AD J3A220291-1-SAMP		6.0g,in	SRTA8575 12/06/02 09/19/02 r			88.1	50	)	3/A	200	4	2/1/2	003 000
01/21/2003 08:25		AmtRec:		Containers: 2				Scr Rst:	Alpha: 5	.31E+01 pCi/g	Beta	2.02E+01 p	Ci/g
2 FGHGV-1-AD J3A220291-2-SAMP		6.0g,in	SRTA8576 12/06/02 09/19/02.r			89.2			3 <i>1</i> ß	200	) <b>(</b> ,	2/1/201	030P
01/21/2003 08:30		AmtRec:	LP,125P #C	Containers: 2			- [	Scr Rst:	Alpha: 9	.02E+01 pCi/g	Beta	: 3.18E+01 p	Ci/g
3 FGHGV-1-AN-X J3A220291-2-DUP		6.0g,in	SRTA8577 12/06/02 09/19/02.r			87.8			310	20	04	>/· /:	200306
01/21/2003 08:30		AmtRec:	LP,125P #C	Containers: 2				Scr Rst:	Alpha: 9	).02E+01 pCi/g	Beta	: 3.18E+01 p	xCi/g
4 FGLT7-1-AA-B J3A240000-346-BLK		6.0g,in	SRTA8578 12/06/02 09/19/02 r			77.3			32 A	20	06	2/1/	200201
01/21/2003 08:30		AmtRec:		tainers: 1				Scr Rst:		Alpha:		Beta:	
5 FGLT7-1-AC-C J3A240000-346-LCS	-	6.0g,in	STSB0692 01/15/03 11/25/02.t			78.4			32B	u	2010		
01/21/2003 08:30		AmtRec:	#Cont	tainers: 1			J	Scr Rst:		Alpha:		Beta:	
Comments:													
All Clients for Bat 127642, BECHTE	L HANFORD, INC.		Becht	el Hanford, Inc.		BG2, 27038				· · · · · · · · · · · · · · · · · · ·			
Sr-90 RDL:		/g LCL:70	UCL:130	RPD:35								<u>-</u>	
1	y: In - Initial Amt, fi r - Reference date	·	•		ge 1							WO Cnt: 5 rep_SampleF	

1	1/29/	'03	4:4	9:0	5	РΜ
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Batch: 3024346

SEQ Batch, Test: None

## Sample Preparation/Analysis

CH Sr-Total PrpRC5013, SepRC5006 TH Total Strontium by GPC 51 CLIENT: HANFORD

**PRIORITY** 

Balance Id:1120373922

Pipet #:

Report Due: 02/12/2003

pCl/g

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample DateTime	Total Amt/Unit	11	itial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date
FGLT71AA-BLK:				,,,					·		
Sr-90 RDL:	1	pCi/g	LCL:	UCL:	RPD:						
FGLT71AC-LCS:											
Sr-90 RDL:	1	pC1/g	LCL:70	UCL:130	RPD:35						
FGHGQ1AD-SAMP Calc	: Info:										
Uncert Level	(#s).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.	Y ODR	s: B				
FGLT71AA-BLK:											
Uncert Level	(#s).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.	Y ODR	s: B				
FGLT71AC-LC8:											
Uncert Level	(#s).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.	Y ODR	u: B				

2/6/03 10:34:39 AM

# ICOC Fraction Transfer/Status Report ByDate: 1/7/03, 2/7/03, Batch: '3024346', User: 'All Order by BatchNbr, WorkOrderNbr, DateTimeAccepting

Q Batch Wor	k Ord CurSta	tus A	ccepting		Comments Comments
3024346		······································			
AC	CalcC	BELSITOB	1/27/03 4:05:30	PM <sub>.</sub>	
SC		WagarR	IsBatched	1/24/03 11:45:35 AM	ICOC_RADCALC v4:5.3.2
SC		BELSITOB	InPrep	1/27/03 4:05:30 PM	RICH-RC-5013 REVISION 4
SC	.,	BELSITOB	Prep1C	1/28/03 2:14:25 PM	RICH-RC-5013 REVISION 4
SC	,	WAGNERJ	InPrep2	1/29/03 4:46:18 PM	RICH-RC-5013 REVISION 4
SC		WAGNERJ	Prep2C	1/30/03 9:00:40 AM	RICH-RC-5013 REVISION 4
SC		FABREM	InSep1	1/30/03 9:11:50 AM	RICH-RC-5006 REVISION 5
SC		FABREM	Sep1C	2/1/03 9:31:14 AM	RICH-RC-5006 REVISION 5
SC		DAWKINSO	InCnt1	2/1/03 1:05:33 PM	RICH-RD-0003 REVISION 3
SC		DAWKINSO	CalcC	2/2/03 12:45:04 PM	RICH-RD-0003 REVISION 3
AC		BELSITOB	1/28/03 2:14:25	5 PM	
AC	•	WAGNERJ	1/29/03 4:46:18	3 PM	
AC		WAGNERJ	1/30/03 9:00:40	) AM	
AC		FABREM	1/30/03 9:11:50	) AM	
AC		FABREM	2/1/03 9:31:14	AM	
AC		DAWKINSO	2/1/03 1:05:33	PM	
AC		DAWKINSO	2/2/03 12:45:04	I PM	

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

1/24/2003 11:45:50 AM	S	ample Preparation/A	nalysis	В.	alance id: 02	9
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc.  Report Due: 02/12/2003	. 5S C-14 Prp. S3 Carbon-1 5I CLIENT:	4 by Liquid Scint	PRIOR	1 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	Pipet #:	NK
Batch: 3024350 SOIL	pCi/g	PM, Quote: BG2,	27038	<del></del>	Г/Tm Tech:	MY
SEQ Batch, Test: None				_	Prep Tech:	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Work Order, Lot, Sample DateTime Total Amt/Unit	, , , , , , , , , , , , , , , , , , , ,	C Tracer QC Vial 2 rep Date Prep Date	Count Time Min		unt On   Off 24hr) Circle	CR Analyst, Init/Date
1 FGHGQ-1-AL						
J3A220291-1-SAMP						
01/21/2003 08:25	AmtRec: LP,125P	#Containers: 2	Scr Rst:	Alpha: 5.31E+01 pCl/g	Beta: 2.02E+01	oCi/g
2 FGHGV-1-AL						
J3A220291-2-SAMP	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			·		
01/21/2003 08:30	AmtRec: LP,125P	#Containers: 2	Scr Rst:	Alpha: 9.02E+01 pCi/g	Beta: 3.18E+01	oCl/g
3 FGHGV-1-AR-X						
J3A220291-2-DUP			·			~~~~~
01/21/2003 08:30	AmtRec: LP,125P	#Containers: 2	Scr Rst:	Alpha: 9.02E+01 pCi/g	Beta: 3.18E+01	pCi/g
4 FGLVD-1-AA-B						
J3A240000-350-BLK		**************************************		~~~~~~		
01/21/2003 08:30	AmtRec:	#Containers: 1	Scr Rst:	Alpha:	Beta:	
5 FGLVD-1-AC-C		·-	•			-,
J3A240000-350-LCS	······································				*************************	
01/21/2003 08:30	AmtRec:	#Containers: 1	Scr Rst:	Alpha:	Beta:	
6 FGLVD-1-AD-BN		<u>-</u>	<del></del> .	<del>-</del>		· · · · · · · · · · · · · · · · · · ·
J3A240000-350-IBLK					***************************************	
01/21/2003 08:30	AmtRec:	#Containers: 1	Scr Rst:	Alpha:	Beta:	
7 FGLVD-1-AE-BN						
J3A240000-350-IBLK	**************************************	.++++++++++++++++++++++++++++++++++++++		********************************		
01/21/2003 08:30	AmtRec:	#Containers: 1	Scr Rst:	Alpha:	Beta:	
•	, fi - Final Amt, di - Diluted Amt,	illed Added Page 1				WO Cnt: 7
Richland Wa. CO r - Reference	date, ec-Enrichment Cell, ct-Cockta	illed Added 'aye'				ICOC

1	/24	/200	)3 :	11.4	15:51	AM

Report Due: 02/12/2003

### Sample Preparation/Analysis

5S C-14 Prp/SepRC5022 S3 Carbon-14 by Liquid Scint **5I CLIENT: HANFORD** 

## PRIORITY

Balance Id: 029

Pipet #: \_\_\_\_

Sep1 DT/Tm Tech: /-28.03 pm

Sep2 DT/Tm Tech:

Prep Tech:

Work Order, Lot,	Total	Initial Aliquot	QC Tracer	QC Vial 2	Count	Detector	Count On I Off	CR Analyst.
Sample DateTime	Amt/Unit	Amt/Unit	Prep Date	Prep Date	Time Min	l ld	(24hr) Circle	Init/Date
		1	<u> </u>	, ,	(	i .	(= <u>/</u> =	

#### Comments:

Batch: 3024350

SEQ Batch, Test: None

All Clients for Batch: 127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , BG2, 27038 FGHGQ1AL-SAMP Constituent List: C-14 RDL:50 LCL:70 UCL:130 pCi/g RPD:35 GLVD1AA-BLK: C-14 RDL:50 pCi/g LCL: UCL: RPD: FGLVD1AC-LCS: pCi/g C-14 RDL:50 LCL:70 UCL:130 RPD:35 FGLVD1AD~IBLK: C-14 RDL:50 pCi/g LCL: UCL: RPD: FGLVD1AE-IBLK: pCi/g LCL: UCL: C-14 RDL:50 RPD: FGHGQ1AL-SAMP Calc Info: Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODR#: B FGLVD1AA-BLK: Uncert Level (#s) .: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B FGLVD1AC-LCS: Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B FGLVD1AD-IBLK: Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B FGLVD1AE-IBLK: Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

pCi/g

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2/6/03 8:41:48 AM

# ICOC Fraction Transfer/Status Report ByDate: 1/7/03, 2/7/03, Batch: '3024350', User: \*All Order by BatchNbr, WorkOrderNbr, DateTimeAccepting

Q Batch Wor	k Ord CurStat	tus A	ccepting		Comments
3024350					
4C	CalcC	McDowellD	1/28/03 8:59:46	S AM	
SC		WagarR	IsBatched	1/24/03 11:45:35 AM	ICOC_RADCALC v4.5.3.2
SC		McDowellD	InSep1	1/28/03 8:59:46 AM	RICH-RC-5022 REVISION 3
SC .		McDowellD	Sep1C	1/28/03 2:20:53 PM	RICH-RC-5022 REVISION 3
SC .		DAWKINSO	InCnt1	1/28/03 2:47:22 PM	RICH-RD-0001 REVISION 2
SC		BłackCL	CalcC	1/29/03 9:29:01 AM	RICH-RD-0001 REVISION 2
IC		McDowellD	1/28/03 2:20:53	3 PM	
AC .		DAWKINSO	1/28/03 2:47:22	PM	
4 <i>C</i>		BlackCL	1/29/03 9:29:01	AM	

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

2/3/03 7:27:48 AM				Sample Pre	paration/Ana	llysis				Balanc	e ld:1120373	3922 /	AB54-S
127642, BECHTEL Bechtel Hanford, Inc	HANFORD, IN :.	IC. ,		3 PrpRC5013/5019, el by ICP and Nick		Scint	PA	IORI	FV		pet #:	•	
Report Due: 02/1	2/2003 W O	3954		NT: HANFORD						p1 DT/Tm <sup>1</sup>	Tech:		
Batch: 3024345	SOIL	pCi/g		PM, C	uote: BG2, 27	038			Sa	Sep2 DT/Tm Tech:			
SEQ Batch, Test: Nor CHTH, 3024348 AXT	ne All Tests: 3 A, 3024349 ATS	3024338 DWEA, 30 66, 3024350 5SS3,	24341 88OV, 3	024342 6ISO, 302434	•		4345 AF	54, 3024346	56	Prep Tech: ,WAGNERJ			
Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquo Amt/Unit	t Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	QC V		Count Time Min		Detector Id	Count On   (24hr) Circl		CR Analyst, Init/Date
1 FGHGQ-1-AE			0.255g,in	0.255g	NITA1227					<u> </u>			
J3A220291-1-SAMP				**********************	01/29/03		*	100					
01/21/2003 08:25		AmtF	lec: LP,125P	#Containers: 2				Scr	Rst:	Alpha: 5.3	1E+01 pCi/g	Beta:	2.02E+01 pCi/g
2 FGHGQ-1-AU-X			0.2568g,in	0.257g	NITA1228								
J3A220291-1-DUP			***********************	***********************	01/29/03		**********						
01/21/2003 08:25		AmtF	lec: LP,125P	#Containers: 2				Scr	Rst:	Alpha: 5.3	1E+01 pCi/g	Beta:	2.02E+01 pCi/g
3 FGHGV-1-AE			0.2548g,in	0.255g	NITA1229	•							
J3A220291-2-SAMP	**	***************************************			01/29/03		***********						
01/21/2003 08:30	· · · · · · · · · · · · · · · · · · ·	AmtF	lec: LP,125P	#Containers: 2				Scr	Rst:	Alpha: 9.0	2E+01 pCi/g	Beta:	3.18E+01 pCi/g
4 FGHGV-1-AM-S									_				
J3A220291-2-MS					********************								
01/21/2003 08:30		AmtF	lec: LP,125P	#Containers: 2				Scr	Rst:	Alpha: 9.0	2E+01 pCi/g	Beta:	3.18E+01 pCi/g
5 FGLTP-1-AA-B			0.25g,in	0.25g	NITA1230								<u> </u>
J3A240000-345-BLK			·····		01/29/03	·	***********						
01/21/2003 08:25		AmtF	lec:	#Containers: 1				Scr	Rst:	Alı	oha:		Beta:
6 FGLTP-1-AC-C		•	0.25g,in	0.25g	NISA0466	•							
J3A240000-345-LCS		***************************************		1884 www.nanong poo 6 66 www.nanano	12/17/02								
01/21/2003 08:25		AmtF	Rec:	#Containers: 1				Scr	Rst:	Alı	oha:		Beta:
7 FGLTP-1-AD-B	<u> </u>						-						
J3A240000-345-BLK				1984 dww				V					
01/21/2003 08:25	•	Amt	lec:	#Containers: 1				Scr	Rst:	Al			Beta:
													<del></del>
				s1 - Sep1, s2 - Sep2	Page 1						"	V	/O Cnt: 7
Richland Wa.	r - Reference	date, ec-Enrichmen	it Cell, ct-Cockt	alled Added	Page 1							Pre	p_SamplePrep v

	AM				nple Prepa		alysis			Balan	ce ld:		
				AF Ni-63 PrpRi S4 Nickel by K			l Caint			P	Pipet #:		
Report Due:	2/12/2003			51 CLIENT: H		-03 by Liquit	i Sciiit	PH	IOHI	Sep1 DT/Tm Tech:			
Batch: 30243	J5	p(	Ci/g				·			Sep2 DT/Tm	Tech:		
SEQ Batch, Test:	None				*					Prep	Tech:		
Work Order, Lot Sample Date	Total Amt /Unit	Total Acidified			Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	QC V Prep		Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst Init/Date	
Comments:							•						
	CHTEL HANFORD,			Bechtel	. Hanford, I	nc.	, BG2, 2	7038					
FGHGQ1AE-SAMP Ni-63	Constituent Li	st: pCi/g	LCL:70	UCL:130	RPD:35								
	KDD. 30	P-x/A	200.70	0021130									
PGHGVlam-MS:	RDL:30	pCi/g	LCL:70	UCL:130	RPD:35								
N1-63													
N1-63 PGLTP1AA-BLK:				***									
N1-63 PGLTP1AA-BLK: N1-63	RDL:30	pCi/g	LCL:	UCL:	RPD:								
Ni-63 PGLTP1AA-BLK: Ni-63 PGLTP1AC-LCS:		_			RPD:								
Ni-63 PGLTP1AA-BLK: Ni-63 PGLTP1AC-LCS: Ni-63	RDL:30	pci/g	LCL:	UCL: UCL:130									
Ni-63 PGLTP1AA-BLK: Ni-63 PGLTP1AC-LCS: Ni-63	RDL:30	_											
FGLTP1AA-BLK: N1-63 FGLTP1AC-LCS: N1-63 FGLTP1AD-BLK: N1-63 FGHGQ1AE-SAMP	RDL:30 RDL:30 RDL:30	pCi/g	LCL:70	UCL: 130	RPD:35	Not.: Y	ODRE: B		·				

FGLTP1AC-LCS:

FGLTP1AD-BLK:

Uncert Level (#s).: 2

Uncert Level (#s).: 2

Uncert Level (#s).: 2

Decay to SaDt: Y

Decay to SaDt: Y

Decay to SaDt: Y

Blk Subt .: N

Blk Subt.: N

Blk Subt .: N

Sci.Not.: Y

Sci.Not.: Y

Sci.Not.: Y

ODRs: B

ODRs: B

ODRs: B

2/18/2003 5:17:14 PM

# PM ICOC Fraction Transfer/Status Report ByDate: 1/19/2003, 2/19/2003, Batch: '3024345', User: \*All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus		Accepting		Comments
3024345						
AC		Rev1C	BELSITOB	1/27/2003 4:05	:26 PM	
SC			WagarR	IsBatched	1/24/2003 11:45:35 AM	ICOC_RADCALC v4.5.3.2
SC			BELSITOB	InPrep	1/27/2003 4:05:26 PM	RICH-RC-5013 REVISION 4
SC			BELSITOB	Prep1C	1/28/2003 2:14:20 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	2/3/2003 7:24:41 AM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	Prep2C	2/4/2003 8:12:10 AM	RICH-RC-5013 REVISION 4
SC			ManisD	InSep1	2/4/2003 8:49:09 AM	RICH-RC-5069 REVISION 4
SC			ManisD	Sep1C	2/5/2003 1:51:47 PM	RICH-RC-5069 REVISION 4
SC			DAWKINSO	InCnt1	2/5/2003 3:41:57 PM	RICH-RD-0001 REVISION 2
SC			BlackCL	CalcC	2/18/2003 2:03:12 PM	RICH-RD-0001 REVISION 2
SC			SMITHP	Rev1C	2/18/2003 5:16:49 PM	RICH-RC-0002 REVISION 5
AC			BELSITOB	1/28/2003 2:14	:20 PM	
AC			WAGNERJ	2/3/2003 7:24:4	1 AM	
AC			WAGNERJ	2/4/2003 8:12:1	0 AM	
AC			ManisD	2/4/2003 8:49:0	9 AM	
4C			ManisD	2/5/2003 1:51:4	17 PM	
AC	<b>.</b>		DAWKINSO	2/5/2003 3:41:5	57 PM	
4C			BlackCL	2/18/2003 2:03	:12 PM	
4C			SMITHP	2/18/2003 5:16:	49 PM	

AC: Accepting Entry; SC: Status Change

STL Richland Richland Wa.

3/5/03 5:26:03 PM Sample Preparation/Analysis Balance Id:1120373922 127642, BECHTEL HANFORD, INC. AG Pu/241 PrpRC5013/5019, SepRC5010(5039) Pipet #: \_\_\_\_ Bechtel Hanford, Inc. SP Plutonium-241 by Liquid Scint PRIORITY DT/Tm Tech: **5I CLIENT: HANFORD** Report Due: 02/12/2003 Batch: 3062565 SOIL pCi/a PM. Quote: BG2, 27038 Sep2 DT/Tm Tech: SEQ Batch, Test: 3051471, AGSO 3051471, AGSO 3062564, AGSO 3062564, AGSO Prep Tech: ,WAGNERJ Initial Aliquot Work Order, Lot. Total **QC Tracer** QC Vial 2 Count Detector Count On | Off CR Analyst, Sample DateTime Amt/Unit Amt/Unit Prep Date (24hr) Circle Init/Date Prep Date Time Min ld 1 FGHGQ-2-AV 2.03g,in PUTD1831 03/05/03 00 J3A220291-1-SAMP 01/21/2003 08:25 AmtRec: LP.125P #Containers: 2 Alpha: 5.31E+01 pCi/g Beta: 2.02E+01 pCi/g 2 FGHGQ-2-A1-X 2.0g,in PUTD1832 03/05/03 J3A220291-1-DUP 12/20/02 r 01/21/2003 08:25 #Containers: 2 AmtRec: LP,125P Scr Rst: Alpha: 5.31E+01 pCi/g Beta: 2.02E+01 pCi/o PUTD1833 3 FGHGV-2-AT 2.0g,in 03/05/03 J3A220291-2-SAMP 12/20/02 01/21/2003 08:30 AmtRec: LP.125P Beta: 3.18E+01 pCi/g #Containers: 2 Scr Rst: Alpha: 9.02E+01 pCi/g 4 FJHPC-1-AA-B PUTD1834 2.0g,in 03/05/03 J3C030000-565-BLK 12/20/02 r 01/21/2003 08:25 AmtRec: #Containers: 1 Scr Rst: Alpha: Beta: 5 FJHPC-1-AC-C 241A0078 2.0q,in 02/28/03 J3C030000-565-LCS .07/26/02.r 01/21/2003 08:25 AmtRec: #Containers: 1 Scr Rst: Alpha: Beta: PUTD1835 6 FJHPC-1-AD-BX 1.98g,in 03/05/03 J3C030000-565-MBLK 12/20/02.1 01/21/2003 08:25 AmtRec: #Containers: 1 Scr Rst: Alpha: Beta: 7 FJHPC-1-AE-CM 1.97g,in 241A0079 02/28/03 J3C030000-565-MLCS 07/26/02.1 01/21/2003 08:25 AmtRec: #Containers: 1 Scr Rst: Alpha: Beta: STL Richland Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 WO Cnt: 7 Page 1 r - Reference date, ec-Enrichment Cell, ct-Cocktailed Added Prep\_SamplePrep v4.6 Richland Wa.

CA

3/5/03	5:26:06	PM
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## Sample Preparation/Analysis

AG Pw/241 PrpRC5013/5019, SepRC5010(5039) SP Plutonium-241 by Liquid Scint

**5I CLIENT: HANFORD** 

Balance Id:

Pipet #: \_\_\_\_\_

PRIORITS 1 DT/Tm Tech:

Batch: 3062565

pCi/g

SEQ Batch, Test: None

Report Due: 02/12/2003

Sep2 DT/Tm Tech:

Prep Tech:

Work Order, Lot, Total Sample DateTime Amt/Unit	Initial Aliquot	QC Tracer	QC Vial 2	Count	Detector	Count On   Off	CR Analyst,
	Amt/Unit	Prep Date	Prep Date	Time Min	Id	(24hr) Circle	Init/Date
						<u></u>	·

8 FJHPC-1-AF-BN

J3C030000-565-IBLK

01/21/2003 08:25

Richland Wa.

4

AmtRec:

r - Reference date, ec-Enrichment Cell, ct-Cocktailed Added

#Containers: 1

Scr Rst:

Alpha:

Beta:

Prep\_SamplePrep v4.6

Comments: Samples were notfled. In 3-6-03

127642,	BECHTEL HANFORD,	INC.		Bechtel	Hanford, Inc.	, в	G2, 27038				
GHGQ2AV-SA	MP Constituent Li	st:			<del></del>						
Pu-241	RDL:15	pCi/g	LCL:	UCL:	RPD:	Pu-242	RDL:	pCi/g	LCL:70	UCL:130	RPD:35
JHPC1AA-BL	K:									•	
Pu-241	RDL:15	pCi/g	LCL:	UCL:	RPD:	Pu-242	RDL:	pCi/g	LCL:70	UCL:130	RPD:35
JHPC1AC-LC	S:										
PU-239	RDL:	pCi/g	LCL:70	UCL:130	RPD:35	Pu-241	RDL:15	pCi/g	LCL:70	UCL:130	RPD:35
Pu-242	RDL:	pCi/g	LCL:70	UCL:130	RPD:35		1.02.15	pc1/g	DCD:/U	000:130	RPD:35
JHPC1AD-MB	LK:										
Pu-241	RDL:15	pCi/g	LCL:	UCL:	RPD:	Pu-242	RDL:	pCi/g	LCL:70	UCL:130	RPD:35
JHPC1AE-ML	CS:										
PU-239	RDL:	pCi/g	LCL:70	UCL:130	RPD:35	Pu-241	RDL:15	pCi/g	LCL:70	UCL:130	RPD:35
Pu-242	RDL:	pCi/g	LCL:70	UCL:130	RPD:35			DCT/G	101170	OCLITIO	KPU:35
JHPC1AF-IB	LK:				<del>-</del>						
Pu-241	RDL:15	pCi/g	LCL:	UCL:	RPD:	Pu-242	RDL:	pCi/g	LCL:70	UCL:130	RPD:35
GHGQ2AV-SA	MP Calc Info:										
Uncert	Level (#s).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.	Y ODR	. 10				
JHPC1AA-BL			- <del></del>			ODRE	• 5				
Uncert	Level (#s).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.	Y ODR	Le R				
JHPClac-LC	S:	_				ODK					
	Level (#s).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.	: Y ODRs	ı B		•		
FJEPC1AD-MB	LK:										
Uncert	Level (#s).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.	Y ODR	: B				

Page 2

	•	Preparation/Analysis 3/5019, SepRC5010(5039)	PRIORITY Pipet #:	
Report Due: 02/12/2003	5I CLIENT: HANFOI	•	Sep1 DT/Tm Tech:	
Batch: 3062565	pCi/g		Sep2 DT/Tm Tech:	
SEQ Batch, Test: None			Prep Tech:	
Work Order, Lot, Total Sample DateTime Amt/Unit	Initial Aliquot	QC Vial 2 Count Prep Date Time M		CR Analyst, Init/Date
JHPC1AE-MLCS: Uncert Level (#s).: 2 De JHPC1AF-IBLK:	ecay to SaDt: Y Blk Subt.: N	Sci.Not.: Y ODRs: B		
	ecay to SaDt: Y Blk Subt.: N	Sci.Not.: Y ODRs: B		

STL Richland Richland Wa. Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2

r - Reference date, ec-Enrichment Cell, ct-Cocktailed Added

Page 3

WO Cnt; 8
Prep\_SamplePrep v4.6

3/17/03 5:15:23 PM

# ICOC Fraction Transfer/Status Report ByDate: 2/15/03, 3/18/03, Batch: '3062565', User: \*All Order by BatchNbr, WorkOrderNbr, DateTimeAccepting

Q Batch Work Ord	d CurStatus	, ,	ccepting		Comments
3062565					
AC	CalcC	WAGNERJ	3/4/03 1:50:11	PM	
SC		AndersonP	IsBatched	3/4/03 7:43:20 AM	ICOC_RADCALC v4.5.3.2
SC		WAGNERJ	InPrep2	3/4/03 1:50:11 PM	RICH-RC-5019 REVISION 4
SC		WAGNERJ	Prep2C	3/6/03 5:03:52 PM	RICH-RC-5019 REVISION 4
SC		HAMMERL	InSep1	3/7/03 8:08:14 AM	RICH-RC-5010 REVISION 3
SC		BlackCL	InCnt1	3/14/03 11:45:13 AM	RICH-RD-0001 REVISION 2
SC		BlackCL	CalcC	3/16/03 7:42:51 AM	RICH-RD-0001 REVISION 2
AC		WAGNERJ	3/6/03 5:03:52	РМ	
AC		HAMMERL	3/7/03 8:08:14	AM	
AC		BlackCL	3/14/03 11:45:1	3 AM	
AC		BlackCl	3/16/03 7:42:51	AM	

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

1/24/2003 11:45:50 A	.M		Sample Prep	aration/An	alysis		Balance Id: <	228
127642, BECHTEL HA Bechtel Hanford, Inc. <b>Report Due: 02/12/2</b>	1 , , , ,	S6 Tritiur	p/SepRC5037 n by Liquid Scint IT: HANFORD		PRIORI		Pipet #: p1 DT/Tm Tech: /	
<u> </u>	<del>~~~</del>	oCl/g		uote: BG2, 27	7029	<del></del>		
SEQ Batch, Test: None	JOIL ,	Jord	rw, Q	uole: pgz, 27	USO	Se	p2 DT/Tm Tech:	
DEC DOLON, 1001. 110110							Prep Tech:	
Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date
1 FGHGQ-1-AJ			_					
J3A220291-1-SAMP	***************************************			***				
01/21/2003 08:25		AmtRec: LP,125	Containers:	2	Scr Rst:	Alpha: 5.31E+01	pCi/g Beta: 2.02E	+01 pCi/g
2 FGHGV-1-AJ								
J3A220291-2-SAMP								
01/21/2003 08:30		AmtRec: LP,125	Containers:	2	Scr Rst:	Alpha: 9.02E+01	pCi/g Beta: 3.18E	+01 pCi/g
3 FGHGV-1-AQ-X			· · · · · ·				· · · · · · · · · · · · · · · · · · ·	
J3A220291-2-DUP		**********************************	<del></del>		******************	87.77.000000000000000000000000000000000		
01/21/2003 08:30		AmtRec: LP,125	P #Containers:	2	Scr Rst:	Alpha: 9.02E+01	pCi/g Beta: 3.18E	E+01 pCl/g
4 FGLVA-1-AA-B	- 100 11 12			•		******		
J3A240000-349-BLK		***************************************						
01/21/2003 08:30		AmtRec:	#Containers: 1		Scr Rst;	Alpha:	Bet	a:
5 FGLVA-1-AC-C								
J3A240000-349-LCS		·->		PP 1000 www.commons.com				
01/21/2003 08:30		. AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Bet	a:
6 FGLVA-1-AD-BN								
J3A240000-349-IBLK	**************************************		***************************************					**************************
01/21/2003 08:30		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Bet	ta:
7 FGLVA-1-AE-BN								
J3A240000-349-IBLK					***************************************			
01/21/2003 08:30		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Be	ta:
STL Richland	Key: In - Initial Amt, f	i - Final Amt, di - Diluted A	nt,	D4				WO Cnt: 7
Richland Wa.	r - Reference date	e, ec-Enrichment Cell, ct-Co	cktailed Added	Page 1				ICOC

マ

1/24/2003 11:45:50 AI	м	Α	50	5:	:4:	1	1	ივ	O	/2	4,	12	1
-----------------------	---	---	----	----	-----	---	---	----	---	----	----	----	---

## Sample Preparation/Analysis

PRIORITY

Balance Id: 028

Pipet #: \_\_\_\_

Report Due: 02/12/2003

S6 Tritium by Liquid Scint **5I CLIENT: HANFORD** 

AT H-3 Prp/SepRC5037

Sep1 DT/Tm Tech: 1-28-03 DM

Sep2 DT/Tm Tech:

Prep Tech:

SEQ Batch, Test: None

Batch: 3024349

Work Order, Lot, Count On | Off (24hr) Circle CR Analyst, Total Initial Aliquot QC Tracer QC Vial 2 Count Detector Sample DateTime Amt/Unit Amt/Unit **Prep Date Prep Date** ld Init/Date Time Min

### Comments:

	es for Batch: 2. BECHTEL HANFORD,			Bechtel	Hanford, Inc.	, BG2, 27038
12/642	, BECHTEL HARFORD,	IBC.		Pecurer	Maniford, Inc.	, BG2, 27030
FGHGQ1AJ-8	SAMP Constituent Li	st:				
H-3	RDL:400	pCi/g	LCL:70	UCL:130	RPD:35	
FGLVA1AA-1	BLK:					
H-3	RDL:400	pCi/g	LCL:	UCL:	RPD:	
FGLVA1AC-I	LCS:					
H-3	RDL:400	pCi/g	LCL:70	UCL:130	RPD:35	
FGLVA1AD-1	IBLK:					
H-3	RDL:400	pCi/g	LCL:	UCL:	RPD:	
FGLVA1AE-	IBLK:					
H-3	RDL:400	pCi/g	LCL:	UCL:	RPD:	
FGHGQlAJ-	SAMP Calc Info:					
Unce	rt Level (#s) : 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.: Y	ODRs: B
FGLVA1AA-I	BLK:					
Unce	rt Level (#s).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.: Y	ODRs: B
FGLVA1AC-	LCS:					
Unce	rt Level (#s).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.: Y	ODRs: B
FGLVA1AD-	IBLK:					
Unce	rt Level (#s).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.: Y	ODRs: B
FGLVA1AE-	IBLK:					
Unce	rt Level (#s).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not.: Y	ODRs: B

pČl/g

r - Reference date, ec-Enrichment Cell, ct-Cocktailed Added

2/4/03 9:35:28 AM

# ICOC Fraction Transfer/Status Report ByDate: 1/5/03, 2/5/03, Batch: '3024349', User: \*All Order by BatchNbr, WorkOrderNbr, DateTimeAccepting

Q Batch	Work Ord	CurStatus	-	Accepting	<del></del>	Comments
3024349						
AC		inCnt1	McDowellD	1/28/03 8:59:28	B AM	
SC			WagarR	IsBatched	1/24/03 11:45:35 AM	ICOC_RADCALC v4.5.3.2
SC			McDowellD	InSep1	1/28/03 8:59:28 AM	RICH-RC-5037 REVISION 3
SC			McDowellD	Sep1C	1/28/03 2:21:05 PM	RICH-RC-5037 REVISION 3
SC			DAWKINSO	InCnt1	1/28/03 2:47:32 PM	RICH-RD-0001 REVISION 2
SC			BlackCL	InCnt1	1/29/03 12:48:23 PM	RICH-RD-0001 REVISION 2
4C			McDowellD	1/28/03 2:21:05	5 PM	
4 <i>C</i>			DAWKINSO	1/28/03 2:47:32	2 PM	
AC .			BlackCL.	1/29/03 12:48:2	23 PM	

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

1/24/2003 11:45:45 AM	Sa	mple Preparati	•	Bal	ance Id:	<del></del>				
127642, BECHTEL HANFORD, INC. , Bechtel Hanford, Inc.			Digestion by method n, Hexavalent (7196 <i>)</i>		DDIODEN/			Pipet #:		
Report Due: 02/12/2003 ( )	3954	5I CLIENT: HANFORD			PRIOR	) į Y	Sep1 DT/	Tm Tech:		
Batch: 3024338 SOIL	mg/kg		PM, Quote:	BG2, 270	38	<del></del>	Sep2 DT/	Tm Tech:		
SEQ Batch, Test: None							_	ep Tech:		
Work Order, Lot, Sample DateTime Total Amt/Unit	Initial Aliquot Amt/Unit	QC Trace Prep Date		Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst Init/Date	
1 FGHGQ-1-AA							<del></del>	""		
J3A220291-1-SAMP	******									
01/21/2003 08:25		AmtRec: LP,125P	#Containers: 2		Scr Rst:	Alpha: 5.31	E+01 pCi/g	Beta: 2.02E+01 pCi/g		
2 FGHGQ-1-AM-S										
J3A220291-1-MS					****	**********				
01/21/2003 08:25		AmtRec: LP,125P	#Containers: 2		Scr Rst:	Alpha: 5.31	E+01 pCi/g	Beta: 2.02E+01 pCi/g		
3 FGHGQ-1-AN-X										
J3A220291-1-DUP		***************	···							
01/21/2003 08:25		AmtRec: LP,125P	#Containers: 2		Scr Rst:	Alpha: 5.31	E+01 pCi/g	Beta: 2.02E+01 pCi/g		
4 FGHGQ-1-AP-S										
J3A220291-1-MS							·			
01/21/2003 08:25		AmtRec: LP,125P	#Containers: 2		Scr Rst:	Alpha: 5.31	E+01 pCi/g	Beta: 2.02E+01 pCi/g		
5 FGHGV-1-AA										
J3A220291-2-SAMP	*******	***************************************		~~~~~~						
01/21/2003 08:30		AmtRec: LP,125P	#Containers: 2		Scr Rst:	Alpha: 9.02	E+01 pCi/g	Beta: 3.18E+01 pCi/g		
6 FGLR3-1-AA-B							····			
J3A240000-338-BLK										
01/21/2003 08:25		AmtRec:	<b></b> #Containers: 1		Scr Rst:	Alpi	ha:	Beta:		
7 FGLR3-1-AC-C										
J3A240000-338-LCS				~~~~~			***********			
01/21/2003 08:25		AmtRec:	#Containers: 1	<u> </u>	Scr Rst:	Alp	ha:	Beta:		
									<u> </u>	
STL Richland Key: In - Initial Am	nt, fi - Final Amt,	di - Diluted Amt,							WO Cnt: 7	
Richland Wa r - Reference	date, ec-Enrichme	nt Cell, ct-Cocktail	ed Added Page	1					ICOC V	

1/24/2003 11:45:46 AM		Samp	le Preparation	/Analysis		Balance Id:					
			tion by method 306	50A			Pipet #:				
		EA Chromium, He	Pf	RIORITY							
Report Due: 02/12/2003		51 CLIENT: HANF	FORD		_	Sep1 DT/I	m Tech:				
Batch: 3024338	mg/kg					Sep2 DT/T	m Tech:				
SEQ Batch, Test: None				Prep Tech:							
Work Order, Lot, Total Sample DateTime Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Ppt or Size Geome	Count ry Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date			
Comments:			<u></u>	<u></u>							
All Clients for Batch:											
127642, BECHTEL HANFORD,	INC.	Bechtel Ha	nford, Inc.	, BG2, 2703	8 .						
FGHGQ1AA-SAMP Constituent Lis	t:										
FGHGQ1AM-MS Constituent List:											
· magama ma compersuant mase.											
FGHGQ1AP-MS:											
FGLR31AA-BLK:											
FGLR31AC-LCS:											
Provocata Carm Calle Tage											
FGHGQ1AA-SAMP Calc Info: Uncert Level (#s).: 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B							
FGHGQlAM-MS Calc Info:											
Uncert Level (#s).: 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B							
FGHGQ1AP-MS:	Daniel de de Déc. 11	712 A.L M	a-i was - w	000a. B							
Uncert Level (#s).: 2 FGLR31AA-BLK:	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B							
Uncert Level (#s) -: 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B							
FGLR31AC-LCS:	-										
		911 ALL . W	Gai Mat . W	ODB D							



### **ANALYTICAL REPORT**

PROJECT NO. 105-F RX PH IV

B02-030

Lot #: F3A270166 SDG #: W03954

Joan Kessner

Bechtel Hanford, Inc. 3190 George Washington Way Richland, WA 99352

SEVERN TRENT LABORATORIES, INC.

MARTI WARD Project Manager

February 12, 2003

Severn Trent Laboratories, Inc.

STL St. Louis • 13715 Rider Trail North, Earth City, MO 63045
Tel 314 298 8566 Fax 314 298 8757 • www.stl-inc.com





#### **CASE NARRATIVE**

Bechtel Hanford Incorporated 3190 George Washington Way Richland, Washington 99352

February 12, 2003 Attention: Joan Kessner

Project Number : 50927
SAF : B02-030
SDG : W03954
Number of Samples : two
Sample Matrix : soil

Data Deliverable : Summary

Date SDG Closed : January 24, 2003

#### II. Introduction

On January 25, 2003, one (1) "solid" sample was received by STL-St. Louis for chemical analysis. The samples wwww received at the St. Louis lab within temperature criteria. See the COC and CUR forms for details of sample condition and temperature. See the attached Sample Summary form for the Lab ID's and corresponding Client Ids.

### III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. This report is not complete without the Case Narrative. Results are reported "as received"; i.e. wet weight, unless otherwise noted on the data sheets.

Analyses requested:

see the attached methods summary sheet

Deviation from Request: none

### IV. Definitions

The following codes are used to denote laboratory quality control samples and can be found in the data summary section of this report:

QCBLK- Quality Control Blank, Method Blank

QCLCS- Quality Control Laboratory Control Sample, Blank Spike

MS- Matrix Spike.

DUP- Matrix Duplicate

MSD- Matrix Spike Duplicate.



Bechtel Hanford Incorporated February 12, 2003 Project Number: 50927

SDG: W03954 Page 2

V. Comments

General:

The term "Detection Limit" used in the analytical data reports refers to either the

lab's standard reporting limits or contractually required reporting limits, whichever

is applicable.

Metals:

A Laboratory Control Sample, Method Blank, Matrix Spike and Matrix Spike

Duplicate were analyzed with each preparation batch per the protocol for

this analysis.

There were no comments or non-conformances associated with this data.

PCB:

A Laboratory Control Sample, Method Blank, Matrix Spike and Matrix Spike

Duplicate were analyzed with each preparation batch per the protocol for

this analysis.

The surrogate recovery in the LCS and MS/MSD were above the control limits. The individual spike compounds recovered within criteria. The samples have acceptable surrogate recovery. There were no target compounds detected in the samples, demonstrating that the high bias of

the surrogates did not adversely affect the data.

I certify that this Summary is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Marti Ward

St. Louis Project Manager

NOTE(S):

### SAMPLE SUMMARY

#### F3A270166

WO #	SAMPLE#	CLIENT	SAMPLE ID DATE	 SAMP TIME
FGPGC FGPGJ	001 002	J00FB6 J00FB7	•	08:30 08:25

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted at "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

## **METHODS SUMMARY**

### F3A270166

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD			
Mercury in Solid Waste (Manual Cold-Vapo		SW846 7471A			
Percent Moisture PCBs by SW-846 8082	MCAWW 160.3 MOD SW846 8082	MCAWW 160.3 MOD SW846 3550B/366			
Trace Inductively Coupled Plasma (ICP)		SW846 3050B			
References:					
MCAWW "Methods for Chemical Analysis	s of Water and Wastes".				

"Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

					CU	U 380	14							
Bechtel	Hanford Inc.	Cl	CHAIN OF CUSTODY/SAMPLE ANALYSIS					REC	)UEST		B02-030-037		Page i of i	
Collector Stankovich	ritchell		Company Contact Telephone No Rikki Thoren/Mike Stankov 521-8003			Proiect Co TRENT, SI			t Coordina T, SJ	tor Pr	Price Code 8L		Data Turnaround	
Project Designation 105-F Rx Phase IV	Soils (Sido-slope, overburden, under &							SAF No. B02-030		Ai	Air Quality [1]		21 Days	
ice Chest No. E	RC 99005		.og book No. 1535-8		COA R105FX		<b>.</b>	Metho	Fo D	ent E入				
Shioned To Severn Trent Incor	porated, Richland	Offsite	Tsite Property No. A030100 Bill of Lading/Air Bill No. SEE							E OST		-		
POSSIBLE SAMPI Radioactive	LE HAZARDS/REMARKS		Preservation	None	Cool 4C	None	Cool	4C						
Special Handling	and/or Storage		Type of Container	G/P	G	G	<b>8</b> G							
)	and of Otolage		No. of Container(s)  Volume			1		1 50g						<del> </del>
					/25g	500g								
W03850		See item (1) i Special Instructions	Chromius Hex - 711	96 Special	PCBs -	\$062								
Sample No	o. Matrix *	Sample Date	Sample Time				1.				inga (Sh			
J00FB6	SOIL	1-21-3	0830	<i> </i>	1 .	1 /	J							
		<u> </u>		-	┿		<b> </b>	-		-		<del> </del>		
				<del>  /</del> -	╁──╌		<b></b>				<u> </u>	<del> </del>		1
<u> </u>				/	<del></del>	<del>-                                    </del>	┢╾	_			ļ	1		
CHAIN OF PO		Sign/Prin		.l	SP	ECIAL INSTR	UCTI	ONS			<u> </u>			Matrix *
Relinquished By/Removed From Date/Time Received SJOALS 4 12403 1/00  Relinquished By/Removed From Date/Time Received			128 1-21-3 red in 1146-124	(1) Americium-241; Gamma Spectroscopy {Cesum-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-B3}; Tritium - H3; Carbon-14; Nickel-59; Nidcel-63 laotopic Plutonium-Plutonium-241; Strontium-9,90 Total Sr; Uranium - Isotopic (Complete) {Uranium-234, Uranium-235, Uranium-238}  (2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium Personnel not available to					Nickel-63; te)	S=Soll SE=Soliment SO=Soliment SO=Solime W=Water O=Oil A=Air DS=Down Solute DL=Drum Liquids T=Tlams W1=Wips L=Liquid				
			ived By/Stored In Dute/Time					relinquish samples from the 3728  Ref # 3B on / 124107						V-Vegetation X-Other
Relinquished By/Removed From Date/Time Receiv			red in D											
LABORATORY SECTION	Roceived By			-	Title						<del></del>	r	Nete/Time	<del></del>
FINAL SAMPLE Disposal Method DISPOSITION						Dispo	peed By		**************************************			ĭ	Date/Time	

cur 5804

Bechtel Hanford Inc.	inc. CHAIN OF CUSTODY/SA						AMPLE ANALYSIS REQUEST B02-030-038 Page 1 of						of <u>1</u>	
Collector Stankovich Mitchell		nv Contact i Thoren/Mike Stankov	Telepho 52 i -8						iect Coordii ENT, SJ	ator	Price Code	8L	Data Turnaround	
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under &		ng Location F-Shallow Zone							F No. 2-030		Air Qual	ity 📋	21 ]	Days ———
Ice Chest No. 1AZ		ogbeck No. 1535-8	R105FX200C THIM Pethod of Shipment Federal Express											
Shinned To St Laus Severn Trent Incorporated Richland R	Offsite	Property No.	15R	aac	09	3	•	ВИ	of Lading/	Air Bill	No. 1/	A.		<b>-</b>
POSSIBLE SAMPLE HAZARDS/REMARKS				1	/				}		1/		}	
Radioactive		Preservation	None	Cool	<u>*/</u>	None	Cool	<b>*</b> C						
Special Handling and/or Storage  Type of Container			G/P	G	$\bot$	G	***							
		No. of Container(s)	<u> </u>	$\perp L$		1								
		Volume	1000g	/25	*	500g	250	)g	{ !			ļ	ĺ	
W03854 SAMPLE ANALYSIS	Sec item (1) in Special Instructions	hrom tlex - 1		See item (2) in Special Instructions	PCBs -	8082								
Sample No. Matrix *	Sample Date	Sample Time				77 X		W.					4	
JOOFB7 SOIL O	1-21-0	3 0825	4	L	7	v	4	_						
			/											
	<del></del>		1										l_	
			/											
			Y											
CHAIN OF POSSESSION	Sign/Print			s	SPECI	AL INSTR	UCTIO	ONS					<u>-</u>	Matrix *
	sectived By/Ston	ed in Di 225 1-21-3	nte/Time 5 / Y.									pium-152, Europiu		S-Soil SE-Sodiment
Relinquished By/Removed From Date/Time R	cocived By/Stor	ed lan Da	ute/Time		Isotopi	: Plutonium; l	Plutoniu	<b>m-24</b> 1	; Strontium-9,			bon-14; Nickel-59; - Isotopic (Comple		SO=Solid SI=Sludge W = Water
	NOME		3 074			um-234, Uran roury - 7471 -				(Add-on)	Lead); ICP M	ictals - 6010A (TA	L) (Barium)	O-Oil A-Air
Relinquished By/Removed From Date/Time R	eccived By/Stor	20 la	HO I MAC	1										DS-Dress Solids DL-Dress Lagueds
			840			Pers	opad :	not a	vailable to	1 <b>778</b>				T=Transc W)=Wipe L=Liquid
Relinquished By/Removed From Date/Time R	ate/Time			reliz Ref	# <u>I B</u>	01	oles from the	67				V=Vegetimes X=Other		
Relinquished By/Removed From Date/Time Received By/Stored In Date/														
LABORATORY Received By SECTION			Ţ	ille								(	late/Time	<del></del>
FINAL SAMPLE Disposal Method DISPOSITION						Dispo	sed By			··			Date/Time	



						Lot No.: <i>F3 A270</i>
_		Condition Up St. Louis		•		203854
Client: Li	chland		Das	. 1.25	_0-3 Time:	084
Puote No: 52		15 0251	Init	isted by:	.03 Time:	
hipper/No: 7	edx 192179	362033	(()	C/RFA Numl	oers: 503 · O	01.199
•• ——	ice (Circle "Y" for yes and	N" for no. If "N"	' is circled	see notes fo	r explanation): 6	02-036-038 8 03
1. Ø N	Sample received in undamaged	condition.	5. <b>()</b>	N Sample	volume sufficient for	analysis.
2. ØN	Sample received within 4°C±		6. 🔿		received with Chain	of Custody.
	Record temperature: 3	,53	7.	N Chain o	f Custody matches sa	mple IDs on containers.
3. Y N (N)	Sample received with proper p	H••.	8.	N Custody	seal received intact a	and tamper evident on cooler.
4. (3) N	Sample received in proper con	tainers.	9. ( <del>۷)</del>	N Custody	seal received intact a	and tamper evident on bottles.
prrective Action:						
□ Client's N	Name.	Informa	d verbally or		Ву:	
□ Client's h					ву: Ву:	
	i) processed "as is".	RIIOMIE	d in writing	лі. ————	ву.	
•	s) processed as is:.			[fraless	ed, notify:	<del>,</del>
	ervisor (or designate) Review:	Sustr	less		1.2510	3
roject Management	Review:	mula	as Car	Date:	1.27.03	)

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIALS AND THE DATE NEXT TO THAT ITEM

5804

SL-ADMIN-0004, Revised 5/24/01 \\Qstlmo05\\QA\FORMS\ST-LOUIS\ADMIN\Admin004\_rev\_5\_24\_01.doc

# SEMI-VOLATILE ORGANICS

## Client Sample ID: J00FB6

#### GC Semivolatiles

Lot-Sample #...: F3A270166-001 Work Order #...: FGPGC1AG Matrix.....: SOLID

 Date Sampled...:
 01/21/03
 Date Received..:
 01/21/03

 Prep Date.....:
 01/28/03
 Analysis Date..:
 02/03/03

Prep Batch #...: 3028357

Dilution Factor: 1

\* Moisture....: 4.2 Method.....: SW846 8082

		REPORTIN	īG		
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Aroclor 1016	ND	34	ug/kg	13	
Aroclor 1221	ND	34	ug/kg	13	
Aroclor 1232	ND	34	ug/kg	13	
Aroclor 1242	ND	34	ug/kg	13	
Aroclor 1248	ND	34	ug/kg	13	
Aroclor 1254	ND	34	ug/kg	7.4	
Aroclor 1260	ND	34	ug/kg	7.4	
	PERCENT	RECOVERY	7		
SURROGATE	RECOVERY	LIMITS			
Decachlorobiphenyl	97	(50 - 15	<del>(0)</del>		

NOTE (S):

## MATRIX SPIKE SAMPLE DATA REPORT

#### GC Semivolatiles

Client Lot #...: F3A270166 Work Order #...: FGPGC1AR-MS Matrix.....: SOLID

MS Lot-Sample #: F3A270166-001 FGPGC1AT-MSD

Date Sampled...: 01/21/03 Date Received..: 01/21/03
Prep Date....: 01/28/03 Analysis Date..: 02/03/03

Prep Batch #...: 3028357

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS		PERCNT RECVRY	RPD	METHO	D	
Aroclor 1016	ND	174	236	ug/kg		136		SW846	8082	
	ND	174	172	ug/kg		99 p	31	SW846	8082	
Aroclor 1260	ND	174	240	ug/kg		138		SW846	8082	
	ND	174	204	ug/kg		117	16	SW846	8082	
		P	ERCENT		REC	OVERY				
SURROGATE		R	ECOVERY		LIN	IITS	_			
Decachlorobiphenyl		1	51 *		(14	- 150	)			
		2	59 *		(14	- 150	)			

#### NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

**Bold print denotes control parameters** 

p Relative percent difference (RPD) is outside stated control limits.

<sup>\*</sup> Surrogate recovery is outside stated control limits.

# Client Sample ID: J00FB7

## GC Semivolatiles

Lot-Sample #...: F3A270166-002 Work Order #...: FGPGJ1AG Matrix.....: SOLID

 Date Sampled...:
 01/21/03
 Date Received..:
 01/21/03

 Prep Date....:
 01/28/03
 Analysis Date..:
 02/03/03

Prep Batch #...: 3028357

Dilution Factor: 1

\* Moisture....: 4.0 Method.....: SW846 8082

		REPORTIN	īG		
PARAMETER	RESULT	LIMIT	UNITS	MDL	
Aroclor 1016	ND	34	ug/kg	13	
Aroclor 1221	ND	34	ug/kg	13	
Aroclor 1232	ND	34	ug/kg	13	
Aroclor 1242	ND	34	ug/kg	13	
Aroclor 1248	ND	34	ug/kg	13	
Aroclor 1254	ND	34	ug/kg	7.4	
Aroclor 1260	ND	34	ug/kg	7.4	
	PERCENT	RECOVERY	•		
SURROGATE	RECOVERY	LIMITS			
Decachlorobiphenyl	144	(50 - 15	0)		

NOTE(S):

#### METHOD BLANK REPORT

#### GC Semivolatiles

Client Lot #...: F3A270166

MB Lot-Sample #: F3A280000-357

Work Order #...: FGRC41AA

Matrix....: SOLID

MB IOC-Benipie #: FIRZ00000-15

Prep Date....: 01/28/03

Analysis Date..: 02/03/03

Prep Batch #...: 3028357

Dilution Factor: 1

REPORTING PARAMETER RESULT LIMIT UNITS METHOD Aroclor 1016 ND 33 ug/kg SW846 8082 Aroclor 1221 ND 33 ug/kg SW846 8082 Aroclor 1232 ND SW846 8082 33 ug/kg Aroclor 1242 ND 33 ug/kg SW846 8082 Aroclor 1248 ND SW846 8082 33 ug/kg Aroclor 1254 ИD 33 ug/kg SW846 8082 Aroclor 1260 ND: 33 ug/kg SW846 8082 PERCENT RECOVERY SURROGATE RECOVERY LIMITS (14 - 150)Decachlorobiphenyl 132

NOTE (S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

#### LABORATORY CONTROL SAMPLE DATA REPORT

#### GC Semivolatiles

Client Lot #...: F3A270166

Work Order #...: FGRC41AC

Analysis Date..: 02/03/03

Matrix....: SOLID

LCS Lot-Sample#: F3A280000-357

Prep Date....: 01/28/03

Prep Batch #...: 3028357

Dilution Factor: 1

PARAMETER Aroclor 1016	SPIKE AMOUNT 167	MEASURED  AMOUNT  162	UNITS ug/kg	PERCENT RECOVERY 97	METHOD SW846 8082
Aroclor 1260	167	195	ug/kg	117	SW846 8082
SURROGATE Decachlorobiphenyl		PERCENT RECOVERY 167 *	RECOVERY LIMITS (63 - 150)		

#### NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Surrogate recovery is outside stated control limits.

# **METALS**

## Client Sample ID: J00FB6

## TOTAL Metals

Lot-Sample #...: F3A270166-001

Matrix....: SOLID

Date Sampled...: 01/21/03

Date Received..: 01/21/03

\* Moisture....: 4.2

* MOTECUTE	1.4					
PARAMETER	RESULT	REPORTIN	G UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER_#
Prep Batch #	.: 3027451					
Barium	54.7	20.9	mg/kg	SW846 6010B	01/27-02/03/03	FGPGCLAD
		Dilution Fac	tor: 1	MDL 0.44		
Lead	2.8 J	0.52	mg/kg	SW846 6010B	01/27-02/03/03	FGPGCLAE
		Dilution Fac	tor: 1	MDL 0.070		
Prep Batch #	.: 3029135					
Mercury	0.012 B	0.035	mg/kg	SW846 7471A	01/29/03	FGPGCLAC
		Dilution Fac	tor: 1	MDL 0.0081		

## NOTE (S):

J Method blank contamination. The associated method blank contains the target analyse at a reportable level.

B Estimated result. Result is less than RL.

# MATRIX SPIKE SAMPLE DATA REPORT

# TOTAL Metals

Client Lot Date Sampl				Date Receive	ed: 01	L/21/0	03	Matri	x SOL	Œ
PARAMETER	Sample Amount		MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOL	<u> </u>	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sam	ple #:	F3A2701	66-001	Prep Batch	<b>#:</b> 30	27451	L			
								* Moi	sture: 4.2	
Barium	4.7	209	282	mg/kg	109		CINOAC	6010B	01/27-02/03/03	ECDCC1 AM
_	4.7	209	274	mg/kg	105	2 1		6010B	01/27-02/03/03	
ے.	• . /	209		ing/kg tion Factor: 1	105	J. I	2010	00100	01/21-02/03/03	refectan
Lead										
2	. 8	52.2	56.2	mg/kg	102		SW846	6010B	01/27-02/03/03	FGPGC1AP
2	. 8	52.2	56.6	mg/kg	103	0.70	SW846	6010B	01/27-02/03/03	FGPGC1AQ
			Dilut	tion Factor: 1						
MS Lot-Sam	ole #:	F3A2701	56-001	Prep Batch	<b>#:</b> 30	29135	5			
•				<del>-</del>				* Moi	sture: 4.2	
Mercury					•					
0	.012	0.174	0.184	mg/kg	99			7471A	01/29/03	FGPGC1AK
0	.012	0.174	0.186	mg/kg	100	0.93	SW846	7471A	01/29/03	FGPGCLAL
			Dilut	tion Factor: 1						

# NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

# Client Sample ID: J00FB7

#### TOTAL Metals

Lot-Sample #...: F3A270166-002

Date Sampled...: 01/21/03

Date Received..: 01/21/03

Matrix....: SOLID

\* Moisture....: 4.0

PARAMETER	RESULT	REPORTI	NG <u>UNITS</u>	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #	: 3027451					
Barium	159	20.8	mg/kg	SW846 6010B	01/27-02/03/03	FGPGJLAD
		Dilution Fac	ctor: 1	MDL 0.44		
Lead	4.0 J	0.52	mg/kg	SW846 6010B	01/27-02/03/03	FGPGJIAE
		Dilution Fac	ctor: 1	MDL 0.070		
Prep Batch #.	: 3029135					
Mercury	0.051	0.035	wg/kg	SW846 7471A	01/29/03	FGPGJLAC
_		Dilution Fac	stor: 1	MDL 0.0081	-	

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

I Method blank contamination. The associated method blank contains the target analyte at a reportable level.

## METHOD BLANK REPORT

# TOTAL Metals

Client Lot #...: F3A270166

Matrix..... SOLID

PARAMETER	RESULT	REPORTIN	og Units	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MB Lot-Sampl	Le #: F3A27000	0-451 Prep I	atch #:	3027451		
Barium	ND	20.0	mg/kg	SW846 6010B	01/27-02/03/03	3 FGPQJlAA
		Dilution Fac	tor: 1	·		
Lead	0.13 B	0.50 Dilution Fac	mg/kg	SW846 6010B	01/27-02/03/0	3 FGPQJIAC
_	le #: F3A29000	_			02/20/20	
Mercury	ND	0.033	mg/kg	SW846 7471A	01/29/03	FGRX31AA
		Dildeion Pac	COE: I			
more/e).		Dilution Fac	tor: 1			

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

# LABORATORY CONTROL SAMPLE DATA REPORT

#### TOTAL Metals

Client Lot #: F3A270166 Matrix:								
PARAMETER	SPIKE AMOUNT	MEASURE AMOUNT	UNITS	PERCNT RECVRY	METHOL	)	PREPARATION- ANALYSIS DATE	WORK ORDER #
LCS Lot-Samp	l <b>e#:</b> F3A	270000-4	51 Prep Bat	ch #	: 30274	151		
Barium	392	464	mg/kg	118	SW846	6010B	01/27-02/03/03	FGPQJlAD
		;	Dilution Factor	:: 1				
Lead	95.0	108	mg/kg	114	SW846	6010B	01/27-02/03/03	FGPQJlAE
		;	Dilution Factor	: 1	•			
LCS Lot-Samp	le#: F3A	290000-1	35 Prep Bat	ch #	: 30291	.35		
Mercury	9.41	9.02	mg/kg	96	SW846		01/29/03	FGRX31AC
		1	Dilution Factor	: 10	•			
NOTE(S):								

Calculations are performed before rounding to avoid round-off errors in calculated results.